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Postidentification Feedback Influence Through Nonverbal Cues

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2020

Abstract

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MS, Walden University, 2016

MS, Tiffin University, 2012

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

For many years, psychologists and other social scientists have investigated the influence of postidentification verbal feedback on eyewitnesses' identifications. However, the purpose of this study was to examine if the impact of nonverbal postidentification feedback cues on eyewitnesses' confidence level can have the same effect as verbal postidentification feedback. The postidentification feedback effect has been well documented in regards to verbal feedback. The research questions for this study examined what effects on eyewitnesses' confidence level that positive and negative nonverbal feedback would have. Participants (N=66) were selected at random from a local park and placed into one treatment group (positive, negative or no nonverbal feedback). Two separate questionnaires were completed by the participants and measured using a Likert scale. To conduct this quantitative study a mixed ANOVA was done to see the relationships between and within the pretreatment and posttreatment groups. The results indicate that there was a significant change in eyewitnesses' confidence level after receiving the corresponding feedback. This indicates that an eyewitness can also be influenced by post identification feedback using nonverbal cues. Recommendations are made for ways of improving the lineup administration and other eyewitness identification processes to address common concerns associated with the current procedures and best practices. These findings can contribute to positive social change in law enforcement departments self-assessing their policy and procedures. This can also lead to less bias and suggestibility within the entire criminal justice system.

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Dedication

This dissertation is dedicated to my family for all of their love, support and understanding. To my late Father and my Mother who gave me unconditional love and support throughout this incredibly hard journey. Especially for my Mother who gave me much needed support when we had to start over in life. She gave me positivity when it was most needed.

To my daughter, Faith, you will never know how much you've inspired me. You have been so strong throughout everything you've experienced in your short life. I am so proud of the lady you've become. Thank you for giving me the strength and the inspiration to better myself and to make a better life not only for the both of us but the world around us as well.

"I know in my heart that man is good; that what is right will always eventually triumph; and there is purpose and worth to each and every life."

~President Ronald Reagan

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I could not have done this without my faith and the grace and strength of my Lord Jesus Christ.

To my Chair, Jerrod Brown, thank you for your guidance and support during this difficult journey. The words of support and encouragement you have given to me over the year have been incredible. You have put me on a path to which I am most interested and eager to explore further. Thank you for all of your time, dedication and most of all, your patience.

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Chapter 1: Introduction to the Study

The ability of the eyewitness to correctly identify the offender is a critical component of the criminal justice system. Sometimes, it can be a challenge to obtain undistorted and accurate details from an eyewitness of a criminal event (Kraus, Zeier, Wagner, Palecke, & Hewig, 2017). The confidence that an eyewitness expresses during the testimony is an important criterion used by courts to assess the accuracy of the eyewitness. The confidence level an individual exhibits can often show the probability that they believe their opinion is correct (Bang et al., 2017). According to Steblay, Wells, and Douglass (2014), the confidence of the eyewitness also influences the evaluation of judgments and eyewitnesses by the jurors. Normally, the presence of more confident eyewitnesses enhances the trust in the eyewitness. However, recent experimental studies and forensic exoneration cases have consistently highlighted that mistaken eyewitness identifications may lead to a significant problem. For instance, in the United States, more than 75% of wrongful convictions of people subsequently exonerated by deoxyribonucleic acid (DNA) analysis were attributed eyewitness errors (Dysart, Lawson, & Rainey, 2012). Some of these errors occur as a result of the identification procedure used by law enforcement officers in regards to possible verbal feedback. Postidentification feedback received from the lineup administrator can have a significant impact on the confidence levels of the eyewitness. The feedback can either be verbal or nonverbal. Nonverbal feedback could include cues such as a smile or a nod to imply the eyewitness made the right choice or raised eyebrows to question the decision of the eyewitness (Dixon & Memon, 2005; Gurney, Vekaria, & Howlett, 2014). In this paper, I

evaluated the postidentification feedback influence through nonverbal cues on eyewitness

confidence levels. I examined a possible increase in eyewitnesses' confidence levels but

also looked into any decreases in confidence levels after receiving negative

postidentification feedback.

This study is able to benefit society by changing some norms that have previously

been put into play during the criminal justice process by the criminal justice system. This

study contributes to the positive social change of helping the community and its citizens

to have fair and unbiased criminal justice procedures.

Background

Eyewitnesses' confidence is considered an important determinant of the

identification accuracy within the criminal justice system (Brewer, Vagadia, Hope, &

Gabbert, 2018). The prosecution depends heavily on the ability of the eyewitnesses to

make accurate identifications for cases to be successful. Conventionally, the prosecution

is expected to present facts rather than inaccurate information, which may have been

manipulated or influenced by other factors to favor the defense or prosecution. In the case

of United States V. Wade, 1967, judges acknowledged the dangers that can arise from

wrong or mistaken identifications (Kassin, Tubb, Hosch & Memon, 2001). Judges must,

therefore, evaluate the information they receive from the eyewitness as they do not know

how well the eyewitness saw the suspect, the emotional state of the eyewitness, or

whether the law enforcement influenced the eyewitness. Furthermore, judges must

carefully analyze the questions that the eyewitness responds to in court during the trial to

detect inconsistencies or changes in eyewitness's testimony. During the eyewitness

identification procedure, the eyewitness is asked to select the criminal suspect from a photographic lineup or physical lineup. After selecting the individual, the eyewitness may either receive verbal or nonverbal feedback from the investigator. Based on the eyewitness selection, he/she may be required in court to testify about what transpired months or even years ago. During this second identification, which is made in court, nonverbal cues may play a significant negative or positive impact on the confidence level of the eyewitness (Gurney et al., 2014; Gurney, 2006).

Normally, a trial can last for days, weeks, months, or even years within the conventional criminal justice system. During this time, the eyewitness may be required to testify several times. A study conducted by Quinlivan, Neuschatz, Douglass, Wells, and Wetmore (2012), about the accuracy of the eyewitnesses' accounts after a 1-week delay following the initial photo lineup and feedback, showed that the accuracy of these accounts was distorted. The distortion in the accuracy of eyewitnesses' accounts after a delay can be attributed to weak internal memory cues and reception of confirming feedback from the lead investigator on their choice of suspect from the photo lineup (Steblay et al., 2014). The research was significant as it explored the value of time in eye-witnessing. Furthermore, it acknowledged the existence of the time-lapse between the moment eyewitnesses choose a photo from the lineup and receive feedback and the moment they testify in court as to what they saw and, in most cases, that time-lapse is longer than a week (Semmler & Brewer, 2006).

Elsewhere, several studies have also been conducted on the impact that an eyewitness's expression of confidence has on the jury. In these studies, researchers found

that the jury perceives that an eyewitness's expression of confidence can be a sign that the eyewitness has been coached on what to say or has been manipulated by the investigator's postidentification feedback (Semmler & Brewer, 2006). The jury's perception of eyewitness confidence can have a significant impact on the testimony. In some cases, this perception can adversely affect the testimony and even the outcome of the trial. For instance, the jury considers the eyewitness's description of tangible assets, such as a description of the vehicle leaving the scene, a license plate number, a scar or tattoo to be a show of confidence. Other factors that may not be tangible items can have a subsequent conclusion from the jury (Charman & Quiroz, 2016). Therefore, if an eyewitness exhibits a great deal of confidence, the jury could have subjectively decided that the testimony was coached and therefore they would call into question the eyewitness's creditability.

In the United States, there is currently no case law that limits policy and procedure for how law enforcement agencies should conduct their photo lineup in regards to an eyewitness. However, there are numerous studies and research evidence that suggest best practices for law enforcement when conducting the identification process. In one study, Wells, Steblay, and Dysart (2015) found that there should be a specific way of conducting photo lineups so as to eliminate any suggestibility in that portion of a law enforcement investigation. More specifically, investigators should try to measure the influence levels of suggestibility of individuals using a double-blind photo lineup procedure. This lineup strategy involves the investigation administrators presenting the eyewitness with six photos of similar looking people on a sheet of paper. After that, the

administrator who does not know if the eyewitness's photo is among them presents them

to the eyewitness for identification, this procedure is known as the blind photo lineup

(Semmler & Brewer, 2006). Whoever an eyewitness chooses, he or she cannot be swayed

by body language or any feedback because the administrator does not know who the

suspect is. After this process was completed, there was no indication that the eyewitness

had an increase or decrease in confidence in the picture he or she chose (Semmler &

Brewer, 2006).

In other studies, some psychologists have doubted the use of confidence as an

accuracy marker (Bergold & Heaton, 2018; Odinot, Wolters, & Van Giezen, 2013; Pallier

et al., 2002). This is due to mixed results from empirical studies, reviews, and meta-

analyses, which indicate that there is a small to moderate confidence-accuracy relation. In

the case of the state of *Oregon v. Lawson*, the Oregon Supreme Court addressed some of

the problems associated with eyewitness identification (Charman & Quiroz, 2016). In this

case, the judges decided that the burden of eyewitness evidence reliability should be

placed squarely on the party that wishes to admit such evidence at trial (i.e., the

prosecution). In addition, the judges will be required to scrutinize the evidence of

whether the law enforcement officers used a suggestive identification procedure. The

judges must decide if the eyewitness's testimony is based on mere perception or accurate

knowledge. That is, the judges should determine if outside information has not

contaminated the original memory of the eyewitness (Charman & Quiroz, 2016). The

court also identified some of the variables that would impact the reliability of eyewitness

evidence, for example, confirming feedback, what takes place after identification, and false inflation of the eyewitness' confidence (Smith et al., 2014).

Before the *Oregon v. Lawson* case, most of the courts derived their eyewitnessing standards from the U.S. Supreme Court ruling, which was based on the eyewitness's answer to questions, such as "How good was your view of the culprit?" "How much attention were you paying?," and "How certain were you in your identification?" as indicated in the 1977 *Manson v. Braithwaite* ruling (Charman & Quiroz, 2016). In this ruling, the certainty of the eyewitness regarding the events under investigation is a crucial factor in determining the trustworthiness of the eyewitness evidence and reliability of the testimony. Nevertheless, the Lawson decision highlights issues regarding the elasticity of eyewitness certainty and problems associated with eyewitness evidence. In this decision, the court found that sometimes the eyewitness confidence can be overstated (Charman & Quiroz, 2016). In this regard, the standards established by the U.S. Supreme Court ruling could lead to misleading levels of certainty and inaccurate reports of the eyewitness's actual experience. Focusing on the recent analysis of DNA exoneration cases, mistaken eyewitnesses testified confidently at trial having been substantially uncertain during initial identification.

Recent studies indicated that confidence levels of eyewitnesses grow over time when receiving positive (affirming) feedback (Boydell, Barone, & Read, 2013; Bradfield, Wells, & Olson, 2002; Smith et al., 2014). As a result, an eyewitness who is uncertain during the identification can deliver a convincing trial testimony against an innocent individual (Smith et al., 2014). Postidentification feedback has been conceptualized in

several studies to have a powerful influence on the retrospective judgments of an eyewitness after a lineup decision. From these studies, positive feedback, such as "Good, you identified the suspect" was found to significantly enhance the certainty and ease of identification. Several studies have indicated that eyewitnesses do not form online memory traces regarding issues, such as how good or poor their view is, how much attention they are paying, how certain they are when they make their identification, and so on. Due to this, postidentification feedback implies they made the correct decision even when they are mistaken would act as a cue to make conclusions (Quinlivan et al., 2009). In this interpretation, the postidentification effect encompasses a process in which eyewitnesses rely on the feedback to confirm their views, certainty and other aspects of past experiences.

A different study was conducted explaining another theory that can affect the memory is the misinformation effect. The misinformation effect is where information can be given about an event, which is inconsistent but originates from another source (Szpitalak & Polczyk, 2019). For example, eyewitnesses can talk to each other about what they just witnessed. One eyewitness might say they saw a green car while another may think they saw a red car. Even though this information is inconsistent, it can cause one eyewitness who has a weak internal memory cue to ask himself or herself if he or she really did see a different color car than the other eyewitness. Eyewitnesses can be vulnerable to suggestibility if they are exposed to information, which can bias them by giving them post-event information (Blank & Launay, 2014).

Selective cue integration framework (SCIF) was developed to help in determining the credibility and confidentiality of the eyewitness's testimony (Quinlivan et al., 2009). SCIF is an elaborate process that involves three stages. According to the SCIF account, when eyewitnesses are asked about their views and identification experiences, they are first required to assess the strength of the internal cues before making any decisions (the assessment stage; Quinlivan et al., 2009). If for any reason, the internal cues are weak, the external cues are assessed (search stage). If external cues are found, the eyewitnesses will submit these cues for credibility checks (evaluation stage). Upon evaluation, when external cues are judged to be credible, these external cues will be used in making judgments (Gudjonsson, 2017). The SCIF process can, therefore, be used to explain how manipulations can discredit the feedback; thus it helps to minimize the feedback effects that are attributed to external and internal cues (Houston et al., 2013). It is important for an individual to be able to rely on their own memories and not to be dependent on external cues (Szpitalak, & Polczyk, 2019). Despite the past findings and evidence, more research is still needed in the field of law enforcement so that the officers/investigators can conduct the most effective identification procedures without affecting the eyewitness's confidence and the efficacy of the evidence. The current study differs from previous research because it focuses not on verbal feedback but on nonverbal feedback and how the eyewitnesses perceive it.

Problem Statement

In some court proceedings, eyewitnesses may be required to testify in front of a jury about whatever they eyewitnessed. According to Wells and Quinlivan (2009), the

jury perceives eyewitnesses to be more confident and positive in their selection when they received confirming feedback. Several theories have so far been suggested in an attempt to answer the question: Is an eyewitness's confidence/accuracy influenced by the feedback effect? The cue-accessibility conceptualization is used to assess whether the eyewitness made an accurate identification (Hafstad, Memon & Logie, 2004). Accurate eyewitnesses have stronger internal cues and therefore will be less influenced by external cues (Hafstad et al., 2004). Nevertheless, theoretical analysis has gone beyond acting as a source of information for the interested parties to assisting in determining effective collaboration between the legal system and the researchers. Additionally, researchers continue to evaluate the theoretical perspectives on the mechanisms underlying the postidentification feedback to provide any grounds to believe that the effect led to unbiased lineup instruction conditions. According to Wilford, Chan, and Tuhn (2014), the postidentification feedback effect depends on the strength of internal cues, accuracy, and the external cues provided by the feedback itself. Social comparison theory indicates that people's suggestions, opinions, and abilities are influenced by comparison with others' opinions and abilities when objective and nonsocial cues are unavailable.

Similarly, self-perception theory indicates that individuals' knowledge of their own internal states is at least determined by inferring to observations of their own overt behavior and the circumstances in which the behavior occurred (Dysart et al., 2012). The individual also relies on external cues to infer their own internal states. However, this only happens when the internal cues cannot be interpreted, weak and ambiguous. These studies indicate that an internal cue is the degree of similarity between a stimulus and the

person's memory (Neuschatz et al., 2007; Quinlivan et al., 2012). Although little research

exists on the postidentification feedback effect for unbiased lineup identifications,

theoretical perspectives suggest that the effect will still be detected under these

conditions. However, it is important to note that unbiased instructions produce lower

rates of selection from target-absent lineups (Kovera & Evelo, 2017). In this case, the

eyewitnesses may choose a stricter criterion that requires stronger evidence for a positive

identification to make. Nonetheless, the impact of nonverbal cues on eyewitness

identification is still difficult to determine with certainty. In this research, I assessed what

happens when nonverbal cues, such as facial expressions, are used after identification.

Purpose of the Study

The purpose of this study was to examine whether nonverbal postidentification

feedback can influence an eyewitness's confidence level after he or she chooses an

individual from a photo lineup. Wells et al. (2015) indicated that research on the

postidentification feedback effect through verbal cues has been conducted leading to

procedural changes in best practices in North Carolina, Connecticut, Florida, Texas, and

New Jersey in relation to conducting photo lineups. However, in this study, I focused on

nonverbal cues, such as a smile, wink, nod, or head shake in evaluating eyewitnesses'

confidence in the identification. I also examined the impact of nonverbal feedback, which

I perceived to be a confirmation of or disagreement with the eyewitness's choice in the

line. It is believed that such feedback from the investigator can taint, manipulate, be

suggestive, or in some way influence an eyewitness's memory and his or her confidence.

In this study, I also evaluated whether a relationship exists between the confidence level of an individual and the corresponding feedback that he/she receives. In the current study, I used only a simultaneous photo lineup. The main question answered in this study is whether or not the type of feedback participants receive can influence an eyewitness's confidence levels. According to Douglass et al. (2010), the type of feedback can be perceived as positive by the eyewitness to imply that he/she made the right choice or can be perceived as negative to imply that the eyewitness did not choose the right person. The postidentification feedback effect as a result of nonverbal cues is compared with cases where no feedback is received.

Research Questions

The aim of this study was to determine the postidentification feedback effect on eyewitnesses' confidence levels as a result of positive or negative nonverbal cues. To realize this goal, I answered the following questions:

RQ1: Does positive nonverbal postidentification feedback influence eyewitness confidence?

$H_0 1$: There is no relationship between an eyewitness's confidence level and the type of feedback they receive.

$H_A 1$: There is a relationship between an eyewitness's confidence level and the type of feedback they receive.

RQ2: Does negative nonverbal postidentification feedback influence eyewitness confidence?

$H_0 2$: There is no relationship between an eyewitness's confidence level and the type of feedback they receive.

$H_A 2$: There is a relationship between an eyewitness's confidence level and the type of feedback they receive.

Significance of the Study

Testimony and identification by eyewitnesses plays a crucial role within the criminal justice system in apprehending and prosecution of wrongdoers. However, in the last few years, the process of identification faces massive scrutiny after it was found that more than 258 individuals within the United States have been wrongfully accused and convicted based on the testimony and identification of an eyewitness (Charman & Wells, 2008; West & Meterko, 2017). DNA evidence has led to the exoneration of 70% of the convictions, which came as a result of eyewitness identification (Weir, 2016; Wells, 2018). Berkowitz and Loftus (2018) found that 29% of 347 wrongful convictions were based on issues due to the memory of eyewitnesses. In this regard, technological advancements are forcing law enforcement agencies to reevaluate their techniques in cases that involve eyewitnesses. Postidentification feedback can have an impact on an eyewitness's confidence level (Douglass et al., 2010). This study is important as it would confirm or reject the perception or the belief that postidentification feedback impact either positively or negatively on the eyewitness confidence levels. Due to this, the results of this study will help policymakers to design better identification strategies. Furthermore, the results help address the existing knowledge gap on the postidentification feedback effect. Currently, very little is known regarding the effect of nonverbal cues,

such as facial expressions and gestures, on an eyewitness's confidence after identification.

Theoretical Framework

The main theme of this study is the postidentification feedback effect. For instance, this study recognizes that eyewitnesses can get either verbal or nonverbal cues or feedback from the investigators. These types of feedback normally confirm or reject the identification. In the case of confirmation feedback, the eyewitness perceives the verbal or nonverbal cues to be leading him or her to make the right choice. In retrospect, the eyewitnesses will believe that they are right and must have had a great view and paid close attention to the suspect. Therefore, eyewitnesses tend to rely on an inference process where they recollect the feedback they were given about their choice (Steblay, Wells & Douglas, 2014). This effect suggests that an internal memory cue is not strong in regards to the incident and may be replaced with a stronger memory cue, such as the postidentification feedback (Wells & Quinlivan, 2009). An eyewitness might have a weak internal cue (good/poor memory of the suspect) and therefore will seek out external cues (administrator's feedback) to assess in his or her confidence judgments (Dysart et al., 2012). This effect has been found in eyewitnesses who choose a correct suspect, the wrong suspect, and no suspect at all (Steblay et al., 2014).

All people are vulnerable to misinformation that can be given, whether it is intentional or not. Any misinformation can distort or change an eyewitness' memory of the event that occurred (Berkowitz & Loftus, 2018). Something as small as using certain descriptive words (e.g., head smashed in or man hit on the head) can cause memories to

be false, altered, or reconstructed to an individual (Loftus, 1975; Loftus & Palmer 1974; Loftus & Palmer, 1996). When individuals have weak internal memory cues, they tend to rely more on suggestions from other and external memory cues Gudjonsson (2017), this is called memory distrust syndrome. Memory distrust syndrome can also lead individuals to experience confabulation and to give false confessions (Gudjonsson, 2017; Shaw, 2016).

Several studies have been conducted mainly in relation to verbal postidentification feedback. Since the Wells and Bradfield (1998) study, other studies have been conducted on the verbal postidentification feedback effect (e.g., Bradfield et al., 2002; Charman & Wells, 2008; Charman & Wells, 2012; Dixon & Memon, 2005; Douglass & McQuiston-Surrett, 2006; Douglass & Steblay, 2006; Hafstad et al., 2004; Lampinen, Scott, Pratt, Ledding, & Arnal, 2006; Neuschatz et al., 2005, 2007; Quinlivan et al., 2009; Quinlian et al., 2012; Semmler & Brewer, 2006; Semmler, Brewer, & Wells, 2004; Skagerberg, 2007; Steblay et al., 2014; Wells & Bradfield, 1999; Wells, Olson, & Charman, 2003). As explained by Steblay et al. (2014), most of the existing research and literature on verbal postidentification feedback effect has been consistent. Steblay et al. (2014) researched the postidentification feedback effect after a span of 15 years to analyze whether this effect is still present after such a delay. The effect of a 15-year delay still confirms that the postidentification feedback effect with verbal feedback can inflate an eyewitness's confidence to recall.

In this study, I tested the theory of the postidentification feedback effect while using non-verbal feedback. Instead of verbal feedback, the lineup administrator

demonstrates to the eyewitness a specific type of body language. Gurney, Vekaria, and Howlett (2013) mentioned a head nod (head moving up and down) to reference positive feedback and a head shake (head moving side to side) to reference negative feedback. The administrator simulates the same body language response to all participants in correspondence with their grouping. Nonverbal feedback has yet to be examined fully.

Nature of the Study

This quantitative research provides insight into a participant's levels of confidence. The independent variable was the type of nonverbal reinforcement an eyewitness will receive. The dependent variable was the confidence level of an individual. The confidence level was measured to determine the level of influence by the nonverbal postidentification feedback. The control variable in this research was the "none" feedback that existed among the control group of eyewitnesses. A photo lineup was used in each of the three sets of groups participating in this research study and was a target present lineup.

This quantitative study had an experimental design. The experimental design is for participants to be selected at random (Frankfort-Nachmias & Nachmias, 2008). In this research, the participants were selected into three groups: one group received positive feedback, another group received negative feedback, and the last group received no feedback. This type of random sampling with the participants placed into subgroups is called a stratified random sample (Frankfort-Nachmias & Nachmias, 2008). This can help ensure the validity of the research since anybody at random can be an eyewitness.

The participants viewed a surveillance video of a staged event where the suspect steals a purse from a public gathering. The video contained numerous seconds of video of the suspect. Then there was a pretest and a posttest to measure the eyewitnesses' confidence level. The procedure for this research was based on those implemented by Wells and Bradfield (1998); Steblay et al. (2014); and Douglass, Neuschatz, Imrich, and Wilkinson, (2010); it consisted of a 13-item questionnaire. On this questionnaire, participants were asked to rate their confidence on items, such as how good their view is, can they make out the details of the suspect's face and clothes, and so on (Douglass et al., 2010). The questionnaire is a 5-point Likert scale. The same questionnaire was used in both the pretest and the posttest. It was administered before the eyewitnesses saw the six-person photo lineup and were exposed to the independent variable. The questionnaire was given to the eyewitnesses again after they receive their postidentification feedback or no feedback at all. This questionnaire measured the influence of the different types (positive, negative, or none) of postidentification feedback.

I provided the postidentification feedback that was identified as positive, negative, or no feedback to the participants. A participant is randomly assigned for a specific subgroup, they are designated with the assigned feedback no matter whose photo they chose out of the lineup. There was a six-person photo lineup with the target present (suspect's photo is in the lineup). Whether the participants chose the correct or the wrong suspect, they did receive the feedback of the group in which they were assigned. The group of eyewitnesses (the control group) who did not receive any feedback did get a double-blind photo lineup where the lineup administrator did not know who the suspect

was on the photo lineup (Wells et al., 2015), which did eliminate some suggestibility when it comes to feedback for this specific group.

Definitions

Double-blind lineup: Where an investigator/administrator is unaware of the suspect's identity or whether it is a target-absent lineup and presides over the lineup administration.

Eyewitness: An individual who observes an incident happens and can give first-hand information about the incident.

Fillers: Known innocent pictures that are similar in features.

In-field show-up: Identification procedure in which police present a single individual, the suspect, to an eyewitness and asks them if the person is who they saw.

Lineup: Can contain six to eight people with similar features.

Physical (live) lineup: Six to eight people with similar features stand in a line.

Photographic (photo) lineup: Six to eight photographs of people from the shoulders up with similar features.

Postidentification feedback: Feedback given from the lineup administrator to the eyewitness after identification has been made in reference to the suspect they chose from the lineup.

Postidentification feedback effect: Means the appearance of memory reliability has been influenced by the lineup administrator.

Sequential lineup: The eyewitness views the lineup members one at a time and makes a decision on each before seeing the next photo of the suspect.

Simultaneous lineup: All lineup members (can include or not include the suspect) can be viewed by the eyewitness at the same time.

Single-blind lineup: Traditional practice administrator, but not eyewitness is unaware of the suspect's identity and/or position within the lineup.

Target-absent lineup: A lineup presented to the eyewitness that does not have the picture or person who is suspected in the crime but are all fillers.

Target-present lineup: A lineup, which includes the individual suspected of the crime.

Assumptions

Verbal postidentification feedback has the assumption to which it affects an eyewitness to possibly change or question their memory about what they remember (Douglass et al., 2010). The assumption in this study corresponds with that of the verbal postidentification feedback. In this study, the assumption is that nonverbal postidentification feedback also influenced an eyewitness to change or question their confidence as to the individual they think that they saw.

This assumption is necessary to the study to see if there is any inference or relationship between the type of verbal and nonverbal postidentification feedback. Studies on verbal postidentification feedback have demonstrated that positive feedback can inflate an eyewitness's confidence and negative feedback can decrease an eyewitness's confidence. Therefore, the assumption is that positive and negative nonverbal feedback can increase or decrease an eyewitness' confidence.

Scope and Delimitations

Much of the previous research focuses on verbal postidentification feedback (Bradfield et al., 2002; Gurney, 2014; Semmler & Wells, 2014; Wells & Bradford, 1998; Steblay et al., 2014) and not nonverbal. Such research uses similar Likert scales to measure the confidence of an eyewitness. In this study, I used a pre- and posttest to help identify any increases and decreases in a participant's confidence. It must be noted that there are some threats to internal validity. A questionnaire from the Likert-type scale cannot always capture the same effect as courtroom testimony to attest to an eyewitness's confidence. A participant might also not be as truthful or accurate when filling out a questionnaire. When participants are filling out the questionnaire it is a quiet, test like environment. Pirmoradi and Mckelvie (2015) believe that false memories can be caused when individuals are in a test like setting. There is also the possibility that our photo lineup could have such high similarities with the fillers that it might be difficult if not impossible for the participant to choose a photo (Fitzgerald, Oriet and Price, 2015).

The study consisted of 66 participants who are all adults and speak English as their first language. In reality, there is no discrimination about who can and cannot be an eyewitness. An eyewitness can be any age, race, gender, religion, ethnicity, language, etc. Because this study has as few as 66 participants, we cannot in good faith say that it generalizes any specific population.

Limitations

This study is a quantitative study focusing on the significance of the influence of nonverbal postidentification feedback on the eyewitness's confidence levels. However, I

acknowledge that confidence level is a subjective variable (Crewswell, 2009). For example, one eye-eyewitness might be influenced more than another by the same feedback and thus the results will rely mainly on the estimations (Steblay et al., 2014). Furthermore, the study does not consider the qualitative aspects of the subject matter.

Summary

Postidentification has always been an issue in the criminal justice system. So much so that the courts have recognized its lack of consistency. Numerous studies have shown that verbal postidentification feedback can have an influence on eyewitness confidence. Little to no research has been done using nonverbal feedback either in a direct or indirect manner by the lineup administrator. The goal of this study was to fill the gap in the literature by examining the nonverbal effects of postidentification feedback.

Chapter 2: Literature Review

Introduction

The type of feedback that one receives after an event is usually crucial when the person is to make future judgments. In the identification of suspects, the postidentification feedback received by eyewitnesses can either confirm or create doubts regarding earlier identification. Several studies have found a strong and consistent influence of verbal positive postidentification feedback on the eyewitnesses' retrospective accounts (Bradfield et al., 2002; Dixon & Memon, 2005; Douglass & Steblay, 2006; Wells & Bradfield, 1998). For instance, simple confirmation that the right person has been identified enhances the certainty of self-reports, the speed of identification, and clarity (Smalarz & Wells, 2014). In contrast, studies have indicated that verbal negative feedback prompted eyewitnesses to believe that they had paid less attention to the man's face or to be less willing to testify (Bradfield et al., 2002; Erickson et al., 2016). In this chapter, I evaluate the findings of past studies regarding the impact of verbal and nonverbal cues on eyewitness confidence. This chapter also introduces theories related to the postidentification of suspects and the impact of verbal and nonverbal cues.

Theoretical Perspectives

Several scholars have suggested different theoretical perspectives in an attempt to explain mechanisms underlying postidentification feedback, which could eventually influence unbiased lineup instruction conditions and their impact on the eyewitness confidence (Gurney et al., 2014). Generally, an eyewitness's confidence level can greatly

influence the accuracy of identification within the criminal justice system. For case proceedings to be successful, prosecutors rely on the accuracy of the identification within the criminal justice system. However, nonverbal cues in some cases lead to inaccurate identifications and a decline in eyewitness confidence levels (Semmler & Brewer, 2006).

Alternatively, the verbal or nonverbal cues can make eyewitnesses doubt their initial accounts after a certain period. In the case of confirmation feedback, the eyewitness perceive the verbal or nonverbal cues to be leading him or her to make the right choice. In retrospect, the eyewitnesses believe that they were right and must have had a great view and paid close attention to the suspect.

Wells and Quinlivan (2009) and Dysart et al. (2012) suggested that eyewitnesses will rely on their external memory cue, such as the postidentification feedback that they received. The external memory cue of postidentification feedback will be stronger and more influential than their internal memory cue. An eyewitness can get a "boost" in the confidence of their choice by the feedback and therefore can weaken their internal memory cue (Pirmoradi & Mckelvie, 2015). Steblay et al. (2014) explained that an eyewitness will rely on an inferential process in which they will recollect the postidentification that was received after their selection of the suspect from the lineup.

Consequently, the verbal or nonverbal postidentification feedback could lead the eyewitness to choose a correct suspect, the wrong suspect, and no suspect at all (Steblay et al., 2014). According to Dysart et al., (2012) indirect forms of feedback (nonverbal) can vary between the eyewitness' interpretations only if they believe that the lineup administrator knows who the suspect is in the lineup. In this study, I tested the theory of

the postidentification feedback effect while using nonverbal feedback. Instead of verbal feedback, the lineup administrator demonstrates to the eyewitness a specific type of body language and facial expressions. In the case, it consisted of eyewitnesses to be subjected to pretest and posttest evaluations. I measured the confidence levels of the eyewitness before allowing them to make a selection from the photo lineup then receive feedback. During the posttest, the confidence levels of the eyewitnesses were measured after they made a selection from the lineup considering the initial feedback. The use of pretest and posttest evaluations allowed me to compare and examine the influence of the independent variables (i.e., positive and negative feedback) on the dependent variable, which is the eyewitness confidence levels before and after they receive the postidentification feedback (Semmler et al., 2004).

According to social comparison theory, a person's social and personal worth is determined by the way other people perceive them. In most cases, an individual compares self with others as a way of fostering self-improvement, motivation and building a positive self-image (Gurney, 2006). As a result of the comparison, people constantly evaluate themselves on a variety of domains, such as attractiveness, wealth, intelligence, and success. These evaluations lead to the promotion of judgmental and over competitive attitudes. Past studies revealed that social skills and people's true feelings are a product of social comparison. Mueller (2015) found that people who regularly compare themselves to others are more likely to experience negative feelings of dissatisfaction and guilt and engage in destructive behaviors, such as lying and disordered eating. Based on this theory, suggestions, opinions, and abilities of people are influenced by opinions and

thoughts of other people in cases where objective and non-social cues are available (Palmer, Brewer & Weber, 2010).

Similarly, self-perception theory indicates that individuals' knowledge of their internal states is at least determined by inferring to observations of their overt behavior and the circumstances in which the behavior occurred (Dysart et al., 2012). The individual also relies on external cues to infer their internal states. However, this only happens when the internal cues cannot be interpreted or are weak and ambiguous. These studies indicate that an internal cue is the degree of similarity between a stimulus and the person's memory (Neuschatz et al., 2007; Quinlivan et al., 2012). Memory retrieval abilities can be dependent on an individual's uniqueness that can only hold five pieces of information (Shaw, 2016). Although little research exists on the postidentification feedback effect for unbiased lineup identifications, theoretical perspectives suggest that the effect will still be detected under these conditions. However, it is important to note that unbiased instructions (admonishment) produce lower rates of selection from target-absent lineups (Quinlivan et al., 2016). In this case, the eyewitnesses may choose a stricter criterion that requires stronger evidence to make a positive identification.

Bartlett's (1932) theory of reconstructive memory focuses on the ideas that culture and social contexts can play a role in memory recall. Bartlett contended that memory recall can be influenced by numerous factors, including social factors, imagination, and beliefs, to just name a few.

From these theories, I attempted to answer the following question: Do theoretical perspectives highlighted regarding mechanisms for postidentification feedback offer

sufficient grounds to believe that nonverbal cues could lead to biases in identification or

to enhance or deflate an eyewitness's confidence? In simple terms, the theories argue that

the occurrence of the postidentification feedback effect depends on the strength of

internal cues to accuracy compared to that of external cues provided by the feedback.

Social comparison theory indicates that people assess their opinions and abilities by

comparing them with other people's opinions and abilities when objective (Smalarz &

Wells, 2014). Similarly, self-perception theory states that people know their internal

states by inferring them from observations of their own overt behavior or circumstances

under which the behavior occurs (Semmler & Brewer, 2006). In cases where internal cue

to accuracy is considered weak or ambiguous, the individual will be forced to rely on

external cues to infer their internal states. From these two theories, it is clear that

individuals will rely on external cues, such as postidentification feedback when the

internal cues are weak regardless of the extent of the deficiency associated with these

external cues.

The Role of Postidentification Feedback

The impact of verbal feedback on eyewitness confidence has been well

documented in previous research. However, the literature is still not clear on whether

nonverbal engagement between an eyewitness and police officer/ lineup administrator

can impact on the confidence of the eyewitness. It is assumed that nonverbal behaviors,

such as smiling when an eyewitness is giving their identification might enhance their

confidence (Wells & Quinlivan, 2009). A study conducted by Haw and Fisher (2004)

found that high contact time between eyewitnesses and knowledgeable line-up

administrators led to the eyewitnesses reporting positive identities with increased confidence. However, this effect was lessened when the contact time between the eyewitnesses and the line-up administrator was reduced. On the other hand, when the line-up administrator gave confirming feedback for mistaken identity, the eyewitness had false confidence, causing them to think that their false view was better. Confirming feedback can also motivate the eyewitness to pay more attention to the culprit thus inflating their self-report judgments. Most significantly, the impact of feedback can be clearly observed in eyewitnesses' retrospective judgments concerning their recollections of matters that preceded the feedback and thus could lead to distortions. Charman and Quiroz (2016) confirmed that people assess eyewitnesses' identification testimonies by relying on cues, such as how confident the eyewitness is, the viewing positions of the eyewitnesses, and the level of attention the eyewitness paid during the eyewitnessing episode.

Eyewitness confidence is regarded as one of the most important markers of the accuracy of identification. Psychological studies have, however, cast doubts on confidence as an accuracy marker due to lack of sufficient evidence from empirical studies, reviews, and meta-analyses supporting it (Bradfield et al., 2002). Despite the critique from psychologists, the impact of postidentification feedback on eyewitness confidence cannot be ignored. For example, Bazillion (2017) found that confirming feedback leads the eyewitnesses to report significantly greater confidence in their identifications than eyewitnesses who received no feedback do. A confirming feedback encompasses verbally or nonverbally insinuating that the eyewitness had identified the

culprit. Nonetheless, inflation in confidence effects has also been reported in cases where there was no explicit feedback. One of the studies found that confidence inflation occurred when the lineup administrator simply believed that the person identified as the culprit and used nonverbal behaviors perceived to convey feedback information (Bazillion, 2017).

Though there are differences in the manner in which gestures or nonverbal cues are interpreted, existing evidence asserts that these cues had similar misinformation effects as verbal cues. In the studies by Gurney et al. (2014) and Broaders and Goldin-Meadow (2010), the researchers found that participants incorporated suggestions made via gestures in their memory of the event (Charman & Quiroz, 2016). The results from these two studies supported misleading post-event information, which results from gestures. Though these studies offered a conceptual insight, it is unclear how significant nonverbal cues impact on the overall identification outcomes and confidence levels. Wells and Quinlivan (2009) suggested that the impact of misinformation mainly depends on source monitoring. Normally, eyewitnesses examine the credibility of the source before accepting the reliability of the information presented by it. Similarly, the studies have indicated that the police can potentially influence eyewitnesses to bias their judgments (Sharps, Janigian, Hess & Hayward, 2009). Though source examination is common for verbal cues, gestures may not be subjected to similar credibility tests.

Empirical Findings of the Past Studies

Verbal postidentification feedback to an eyewitness has been a controversial issue within criminal justice systems around the world. Scholars have claimed that verbal

feedback has little to no significant influence on eyewitness' accounts and can vary for different reasons. While other scholars maintain that postidentification feedback can have a significant influence on an eyewitness' account. In this regard, several studies have been conducted mainly in relation to verbal postidentification feedback. Since Wells and Bradfield (1998), many other studies have been conducted on the effect of verbal postidentification feedback (Bradfield et al., 2002; Charman & Wells, 2008; Charman & Wells, 2012; Dixon & Memon, 2005; Douglass & McQuiston-Surrett, 2006; Douglass & Steblay, 2006; Hafstad, Memon & Logie, 2004; Lampinen et al., 2006; Neuschatz et al., 2005, 2007; Quinlivan et al., 2009; Quinlian et al., 2012; Semmler & Brewer, 2006; Semmler et al., 2004; Skagerberg, 2007; Steblay et al., 2014; Wells & Bradfield, 1999; Wells et al., 2003).

Other scholars have different studies believing that postidentification feedback might not be a factor in an eyewitness' account and identification. Pirmoradi and Mckelvie (2015) suggest that an eyewitness can have false memories that can be triggered by being in a test like an environment despite any feedback received. An individual can also be in a test like a process, which is similar to the identification process and has false memories triggered by the process and environment. While Lampinen et al. (2007) maintain that an admonishment after postidentification feedback to disregard such feedback, can reduce its effectiveness.

There have been very few studies on nonverbal postidentification feedback cues compared to verbal postidentification feedback. Recent studies have indicated that both positive and negative nonverbal cues could considerably affect the eyewitness' accuracy

and confidence (Sarwar, Alwood, & Innes-Ker, 2014). However, Mueller (2015) and Smith and Baguley (2014) do not believe there is a relationship between accuracy and an eyewitness' confidence level. Boydell et al. (2013) suggested that even if the lineup administrator has knowledge of the suspect's place in the lineup, it can result in unintended changes in the administrator's nonverbal cues.

Historically, investigators rely heavily on eyewitness as evidence. Since the technological advancement of DNA, investigators have had to reevaluate their techniques in cases involving eyewitnesses. Sarwar et al. (2014) found that postidentification feedback can have a significant impact on an eyewitness' confidence level. Wilford et al. (2014) suggests that the postidentification feedback effect depends on the strength of internal cues, accuracy and the external cues provided by the feedback itself. In this study, I focused specifically on the impact of nonverbal cues. As explained by Steblay et al., (2014) most of the existing research and literature on the postidentification feedback effect is on verbal feedback and has been consistent. Similarly, Loftus and Pickrell (1995) also contends that after a certain amount of time, such information can be given and it be adapted by an individual and they can process it as one of their own memories. Steblay et al. (2014) researched the postidentification feedback effect after a span of 15 years to analyze if this effect is still present after such a delay. The effect of a 15-year delay still confirmed that the postidentification feedback effect with verbal feedback could inflate an eyewitness's confidence to recall. Bradfield et al. (2002) showed that law enforcement agencies rely heavily on identification and testimony of the eyewitnesses so as to support their cases.

In the *United States v. Wade* case in 1967, judges acknowledged the dangers, which can arise from wrong or mistaken identifications (Kassin et al., 2001). In this regard, judges should be in a position to authenticate the information they receive from the eyewitness regarding how well they saw the suspect, emotional state of the eyewitness and whether or not the law enforcement officer influenced the eyewitness. These dangers were confirmed where 258 individuals within the United States were found to have been wrongfully accused based on the testimony and identification of the eyewitnesses (Quinlivan et al., 2011). According to Quinlivan et al. (2016), eyewitness misidentifications accounts for 70% of convictions that have been overturned due to DNA evidence. Quinlivan et al.'s (2012) study is significant as it confirms that the accuracy of the eyewitness' accounts can be distorted over a given period delay due to postidentification feedback and weak internal cues. In most of the cases, eyewitness's confidence can be hugely be damaged is the time lapse is normally longer than a period of one week (Palmer et al., 2010).

Additionally, Mueller (2015) found that tangible assets, such as a description of the vehicle leaving the scene, a license plate number, a scar or tattoo, can be distinct memories, which can inflate an individual's confidence and be shown to the jury (Dodson & Dobolyi, 2015). However, other factors that cannot necessarily be proven or tangible items can have a subsequent conclusion from the jury. Therefore, if an eyewitness exhibits a great deal of confidence, the jury could have subjectively decided that the testimony was coached and, therefore, they would call into question the eyewitness' creditability (Sarwar et al., 2014).

Elsewhere, Wells et al. (2015) study focusing on specific ways of conducting photo lineups highlighted that it is important for law enforcement to eliminate suggestibility in their investigations. More specifically, they tried to measure the levels of suggestibility on an individual using a double-blind photo lineup procedure. This simultaneous type of lineup consists of administrators presenting the eyewitness with six photos of similar-looking people on one sheet of paper. Then, the administrator who does not know if the suspect's photo is among them or not (blind administrator), presents them to the eyewitness. Hence, the procedure is called a blind photo lineup (Gurney, 2006; Kovera & Evelo, 2017). Neither the administrator administering the lineup nor the eyewitness knows if the individual is in the lineup. Whoever an eyewitness chooses, he or she cannot be swayed by body language or any feedback because the administrator does not know who the suspect is. In Wells et al. (2015), after this process was completed, there was no sign of influence on the eyewitness confidence.

Though some studies found no significant impact of positive feedback on eyewitness confidence or accuracy, negative nonverbal cues significantly impacted on the accuracy of the eyewitness' accounts. However, to this day, there is no way to predict relationships between individuals and their memory distortion of what they eyewitness (Patihis, Frenda, & Loftus, 2018). Certain tactics can be used may influence eyewitness to recall events, such as a crime that never really occurred (Shaw & Porter, 2015). These findings, therefore, places a possible strain on criminal investigations. In this case, the judicial system has a responsibility to ensure that the identification process does not lead to innocent individuals being tried and convicted of the crimes they did not commit. In

this case, the identification process should make sure that the true perpetrators are the ones put behind bars. In the past, most of the studies focused on verbal cues ignoring the potential impact of the nonverbal cues on the eyewitness accounts. According to Bedillion (2017), nonverbal cues can also be referred to as "inner speech." As participants recalled the videos they had watched in terms of the body tattoos or the clothes the culprit wore, a positive cue, such as a head nod reinforced their thinking thus they did not change their selection. However, a negative nonverbal cue, such as shaking the head side to side forced the participants to start thinking differently thus leading to a wrong guess in some cases (Smith & Baguley, 2014).

Taking identification after a week can also be attributed to lowered accuracy levels. According to Smith and Baguley (2014), the participants who were not able to recall the culprit could have low internal memory cue, which diminishes due to a long time lapse. Smith and Baguley (2014) indicates that the working memory of a human comprises of several parts, including a central executive, phonological loop, and visuospatial sketchpad. It is the role of the phonological loop to help the individual in visual thinking. In some cases, it may take hours for the individual to identify a culprit. In such cases, hurrying the identification process by using positive or negative nonverbal cues could lead to false identifications. Bedillion (2017) found that when eyewitnesses are given shorter to time identify a culprit, they will most likely end up with false identification.

Past studies found positive verbal feedback was found to significantly enhance the certainty and ease of identification of the eyewitness (Wixted & Wells, 2017). This could

be similar to the effect of the nonverbal feedback, such as a head 'nod' as has been found in this study. Due to this, postidentification feedback that implies they made the correct decision even when they are mistaken would act as a cue to make conclusions (Quinlivan et al., 2009). In this interpretation, the postidentification effect encompasses a process in which eyewitnesses rely on the feedback to confirm their views, certainty and other aspects of past experiences. According to Houston et al. (2013), such findings explain how manipulations can discredit the feedback; thus, it helps to minimize the feedback effects that are attributed to external and internal cues.

Legal Justifications

Around the globe, there have been cases of people who have been wrongfully incarcerated as a result of errors in identification. Such convicted individuals have been eventually released after launching successful appeals while others remain in prisons around the world. Though no laws explain how law enforcement agencies should conduct photo lineup; several studies have been conducted in an attempt to advise the agencies on the best practices for law enforcement in conducting the identification processes. In a study conducted by Wells et al. (2015), the researchers found that there should be a specific way of conducting photo lineups to eliminate any suggestibility in that portion of a law enforcement investigation. More specifically, investigators should try to measure the influence levels of suggestibility of individuals using a double-blind photo lineup procedure. This lineup strategy involves the investigation administrators presenting the eyewitness with six photos of similar looking people on a sheet of paper. In other studies, some psychologists have doubted the use of confidence as an accuracy marker (Wells &

Quinlivan, 2009). This is due to mixed results from empirical studies, reviews, and meta-analyses, which indicate that there is a small to moderate confidence-accuracy relation (Brewer et al., 2018).

Consequently, The Oregon Supreme Court attempted to address the problem of wrongful identification in the case of Oregon v. Lawson 2012 (Charman & Quiroz, 2016). In this case, the judges indicated that the burden of eyewitness evidence reliability should be placed squarely on the party that wishes to admit such evidence at trial, i.e., the prosecution. In addition, the judges will be required to scrutinize the evidence of whether or not the law enforcement officers used a suggestive identification procedure. The judges must decide if the eyewitness's testimony is based on mere perception or accurate knowledge. That is, the judges should determine if outside information has not contaminated the original memory of the eyewitness. The court also identified some of the variables that would impact the reliability of eyewitness evidence, for example, confirming feedback, what takes place after identification and possible false inflation of the eyewitness confidence (Smith et al., 2014).

Before the Oregon v. Lawson 2012 case, most of the courts derived their eyewitnessing standards from the U.S Supreme Court ruling, which was based on the eyewitness's answer to questions, such as "How good was your view of the culprit?" "How much attention were you paying?" and "How certain were you in your identification?" as indicated in the Manson v. Braithwaite, 1977 ruling. In this ruling, the certainty of the eyewitness regarding the events under investigation is a crucial factor in determining the trustworthiness of the eyewitness evidence and reliability of the

testimony (Wixted & Wells, 2017). Nevertheless, the Lawson decision highlighted issues regarding the elasticity of eyewitness certainty and problems associated with eyewitness evidence. In this decision, the court found that sometimes the eyewitness confidence can be overstated. In this regard, the standards established by the U.S Supreme Court ruling could lead to misleading levels of certainty and inaccurate reports of the eyewitness's actual experience. Focusing on the recent analysis of DNA exoneration cases, mistaken eyewitnesses had testified confidently at trial having been substantially uncertain during initial identification, which indicates that eyewitnesses are error-prone (Bedillion, 2017; Loftus, 2018; Sharps et al., 2009).

Finally, it is important to consider suggestions regarding the reliability of confidence as an indicator of accuracy in eyewitness identification. The courts' determinations implied that these assumptions should only apply in cases where eyewitness-identification test procedures were pristine (Wells et al., 2015). Unfortunately, not all jurisdictions collect confidence statements at the time of identification and the jurisdiction that do, often use subjective approaches instead of the double-blind procedure suggested in most court cases. As of 2016, only Connecticut, Colorado, Kansas, Illinois, Maryland, North Carolina, Ohio, and Vermont had passed state laws that would require double-blind lineup administration to be used in eyewitness identification (Wells et al., 2015).

Summary of the Literature

From the past studies, it has been suggested that postidentification cues can either enhance or reduce eyewitness confidence. In that regard, suggesting that law enforcement

remove postidentification feedback during their investigative procedures should be considered one of their best practices (Charman & Quiroz, 2016; Dixon & Memon, 2005; Douglass & McQuiston-Surrett, 2006; Quinlivan et al., 2012). The findings of the past studies and theories reiterate the identification should lead to the preservation of evidence. Nevertheless, the past studies and theories were limited in relation to the most effective ways of preserving an eyewitness' confidence and efficacy for evidence. The review also found that most studies focused on verbal feedback. In this regard, the current study attempted to fill the existing knowledge gap in relation to nonverbal feedback.

From the review, it was found that the police and other law enforcement personnel should ensure that they obtain appropriate perpetrator descriptions. Furthermore, the process of identification of the suspects should be conducted in a manner that can aid in the arrest and trial of criminals. In this case, eyewitnessing should be improved to enhance the confidence levels of the eyewitnesses and the credibility of the criminal justice system. Based on evidence from this study, nonverbal cues during identification create an overshadowing effect on the eyewitnesses leading to wrong selections. However, the study acknowledges that the problem of wrong identification can be eliminated by removing postidentification feedback whether it be verbal or nonverbal feedback.

Chapter 3: Research Method

Introduction

Chapter 2 identified literature explaining eyewitnesses' confidence level is greatly influenced by the behavior or bias of the interviewer. In some cases, the studies indicate that the interviewer's feedback can potentially inflate the confidence level of the eyewitness. For example, Douglass and McQuiston-Surrett (2006) indicated that verbal positive feedback significantly impacted the confidence of the eyewitness giving the testimony. However, the effect of negative or positive nonverbal cues has not yet been completely established. Wells and Bradfield (1998) had used the ANOVA test to compare the impact of positive verbal feedback and that of verbal cues on the testimony of the eyewitness. The results of Wells and Bradfield (1998) study indicate that there are significant differences between the two sets of feedback on the eyewitness testimony. It has been concluded that positive verbal feedback led to more inflated confidence compared to those presented with negative verbal feedback.

Additionally, Chapter 2 identified and described correlations between nonverbal postidentification feedback and eyewitness confidence level. This study, therefore, determines the significance of the relationship between positive and negative nonverbal feedback on the eyewitness confidence level. Chapter 3 describes the process of conducting the study. The chapter highlights and justifies instruments and criteria used to select participants in the study. Most importantly, the chapter explains why the study methods selected are valid and reliable for this particular study.

Research Questions and Hypotheses

The research questions for this study will be as follows:

RQ1: Does positive nonverbal postidentification feedback influence eyewitness confidence?

$H_0 1$: There is no relationship between an eyewitness's confidence level and the type of feedback they receive.

$H_A 1$: There is a relationship between an eyewitness's confidence level and the type of feedback they receive.

RQ2: Does negative nonverbal postidentification feedback influence eyewitness confidence?

$H_0 2$: There is no relationship between an eyewitness's confidence level and the type of feedback they receive.

$H_A 2$: There is a relationship between an eyewitness's confidence level and the type of feedback they receive.

Research Strategy

This study has a quantitative research strategy as it aims to determine the extent of the influence of postidentification feedback on the participants' levels of confidence. The quantitative study focuses to confirm or reject hypotheses. Quantitative studies consist of numbers or numerical values, which are determined using structured and validated data-collection instruments, which can be analyzed using various statistical tools (Creswell, 2009). The quantitative study approach is selected for this study because it allows for generalization of findings and the results can be applied to other populations.

Quantitative studies also allow for proper evaluation of cause and effect in different phenomena, which allows the researcher to make predictions (Creswell, 2009). Data can be collected by the use of surveys, interviews with close-ended questions, questionnaires, and experiments in controlled environments (McBurney & White, 2013).

In this study, the independent variable is the type of nonverbal reinforcement an eyewitness receives (i.e., positive nonverbal feedback or negative nonverbal feedback), whereas the dependent variable is the confidence level of an individual. The confidence level is measured to determine the level of influence by the nonverbal postidentification feedback. The control variable in this research is the "none" feedback that exists among the control group of eyewitnesses (Fowler, 2014). A target-present photo lineup was used in each of the three sets of groups participating in this research study. The lineup consisted of six color photos of individuals who have a similar physical appearance: sex, height, weight, age, race, and hair color (Fitzgerald, Price, & Valentine, 2018).

Research Design

The purpose of this quantitative research is to explore the relationship between positive and negative nonverbal administrator's feedback and eyewitness confidence levels. Participation in this study was voluntary, and participants were given a copy of the consent letter. Quantitative research in the current study is based on experimental design. In such research, participants are selected at random ensuring validity, as every member of the population will have an equal chance of being represented in the study (Frankfort-Nachmias & Nachmias, 2008). I divided participants in this study into three groups: one group will receive positive feedback, another group will receive negative feedback, and

the last group will receive no feedback. This study was, therefore, an experimental design where the dependent variable was the confidence level of the eyewitness. The dependent variable was the eyewitness confidence level. The independent variable was the type of feedback received by the eyewitness upon the identification of the suspect.

Participants viewed a surveillance video of a staged event where the suspect steals a wallet from a gym bag at a public gathering. This video contained numerous seconds of video of the suspect. Because participants can potentially be exposed to inaccurate information from other participants, which can introduce systematic errors in their memory (Gabbert, Memon, & Allan, 2003; Gabbert, Memon, Allan, & Wright, 2004; Szpitalak & Polczyk, 2019), I asked the participants not to discuss or talk to other participants after viewing the mock surveillance video as a group. There was a pretest given before any feedback was given and a posttest given after feedback was given to measure the eyewitnesses' confidence level.

The procedures for this experiment was based on those implemented by Wells and Bradfield (1998); Douglass et al. (2010); Steblay et al. (2014); and Gurney et al. (2014) and consisted of a 13-item questionnaire. This questionnaire asked participants to rate their confidence on items such as how good their view was, whether they could make out the details of the suspect's face, clothes, etc. (see Douglass et al., 2010). The questionnaire used a 5-point Likert scale ranging from 0% - 100% confidence (see Gurney et al., 2014). I used the same questionnaire for both the pretest and the posttest. The pretest was administered before the eyewitnesses viewed the six-person photo lineup and were exposed to the independent variable. The questionnaire was administered to the

eyewitnesses again after they were exposed to the dependent variables. This questionnaire measures the influence of the different types of postidentification feedback. Before the participants viewed the six-pack photo lineup, the lineup administrator read an admonishment explaining what is going to happen pertaining to the process of the lineup. After the admonishment, I asked the participants if they understood.

Postidentification feedback was identified as positive, negative, or no feedback by a lineup administrator. When a participant was randomly assigned for a specific subgroup, they were designated with the assigned feedback. The positive nonverbal feedback was a head nod (head moving up and down) and a smile on the administrator's face. The negative feedback consisted of the administrator shaking her head (head moving left to right) and closing her eyes. The non-feedback group simply got a "Thank you." The participants were not aware of any distinctions between the groups. Once the participant was assigned, the lineup administrator took them one by one, into a private area. There is a six-person photo lineup. Whether the participants chose the correct suspect or not, they received feedback from the administrator corresponding with the group to which they were assigned. Once the participant had chosen a suspect and received feedback, they took the posttest questionnaire. They then exited the private area and remained in the main area for debriefing.

The data analysis was conducted using mixed ANOVA tests that takes into account both between-group effects (different experimental groups) and tell if the groups had differences and within-group effects (pre/post differences) to see if there were differences from pre to post.

Population and Sample

Participants in this study consisted of various adults at a local public park. The participants' various ages and backgrounds were preferred for this study because, in reality, anybody can be an eyewitness. The sample used in this study was randomly selected. A random sample refers to a subset of the population; in this case, different people were selected in such a manner that each member of the subset has an equal chance of being selected. The main advantage of this approach is to ensure unbiased representation of the group. Unbiased random selection of the sample is essential in cases where there is a need for large samples to be drawn and the average sample should accurately represent the population. Consequently, simple random samples are more appropriate in cases where externally valid conclusions about the entire population should be drawn. Due to the nature of the sampling technique, the sample was demographically diverse in terms of sex, race, and degree of social activity and participants' perception of the nonverbal cues (see Lampinen et al., 2007).

In the current study, I conducted a study that allowed for accurate inferences to be drawn about the population. That is, the findings of this study would help decision making process in the role of nonverbal feedback on the quality of the eyewitness testimony. The findings should be able to convince the reader of the study on whether nonverbal feedbacks influence confidence levels of eyewitnesses or not. In this regard, my target was to have a sample of 66 participants for the study. A G*Power analysis for a sample size was as follows: A large effect for Cohen's $d = 0.40$, with a power of 0.80 and an alpha of 0.05 (Cohens, 1988). The participants were divided into three groups of 22

participants each. The first group consisted of those who would be exposed to positive nonverbal feedback (i.e., nodding of the head up and down while smiling). The second group consisted of those who would be exposed to negative nonverbal feedback (i.e., shaking of the head right to left). Lastly, the third group was the control group made up of participants who were not exposed to any form of feedback.

Materials for the Experiment

The materials used to conduct this study included a computer screen, video of an ongoing theft in a public area and a photo lineup of six men. The video is approximately 45-60 seconds in length. In the video, there are a combination of males and females exercising in a group setting. One male pretended to work out with the group while heading to an open gym bag and taking a wallet inside of the gym bag. The male tried to sneak away and steal the wallet while everybody else was concentrating on working out. The photo lineup consisted of six photos of men who look similar to the suspect of the theft.

Study Procedure

This research procedure was conducted a total of 11 different times. Each time this research was conducted, there will be a total of six participants. The six participants were randomly selected into groups to receive positive, negative or no nonverbal feedback. This equals 66 participants, which will divide into three groups to equal 22 participants in each group.

There were flyers posted in public areas as a way to recruit participants. Other participants were approached face to face at a local public park at random and given

information about the study and what it entails. The participants were given a flyer of paper with the date, time and place where the study will take place. This flyer also had a consent form on the back of it. The study took place at a local public park in the party room. Once the participants showed up, they were first be given a copy of the consent form for their records. After, they filled out a short demographic questionnaire regarding their race, age, and gender. The participants were given instructions to view the short video. The participants only got to watch the video once depicting a conventional crime setting. After watching the video, the participants were asked not to talk and separated. The first group of 22 participants were given positive feedback, (e.g. a nod and a smile). The second group of 22 participants were given negative feedback, (e.g. shaking the head sideways). The last group of 22 participants were not given any feedback upon identifying their choice.

The procedure for this research was based on those implemented by Wells and Bradfield (1998); Douglass et al. (2010); Steblay et al. (2014); and Gurney et al. (2014). It had a similar 13-item questionnaire. This questionnaire asked participants to rate their confidence on items, such as how good their view was, can they make out the details of the suspect's face and clothes, and so on (Douglass et al., 2010; Steblay et al., 2014). These previous studies have shown the reliability of the questionnaire in regard to post identification feedback. Using this measurement has helped Wells and Bradfield with the theory of proving the verbal post identification feedback phenomenon. The questionnaire used a 5-point response option anchored from, 0%, 25%, 50%, 75% and 100%. The same questionnaire was used in both the pretest and the posttest. It was administered before the

eyewitnesses see the six-person photo lineup and are exposed to the independent variable. The questionnaire were given to the eyewitnesses again, after they receive their postidentification feedback or no feedback at all. This questionnaire measures the influence of the different types (positive, negative or none) of postidentification feedback.

After completing both questionnaires, the participants then exited the private area and waited in the main room for others to finish. I inquired as to any acknowledgment of any nonverbal feedback that was noticed (i.e. head nod, head shake, or did not see either). This was documented on the back sheet of their corresponding questionnaire. After any acknowledgment is given, the participants were debriefed and thanked for their time and cooperation.

Data Analysis

Here, data analysis encompasses the examination of the relationships between the dependent variable (eyewitness' confidence level) and the independent variables (positive nonverbal feedback, negative nonverbal feedback, and no feedback). In the current study, the results of the questionnaires were analyzed using analysis of variance (ANOVA) technique. Mixed ANOVA works when there are categories or more than two groups within a research study (Frankfort-Nachmias & Nachimas, 2008). Mixed ANOVA allows a researcher to establish a relationship between the variables within the research study (Field, 2009). Mixed ANOVA is an effective tool to organize the results and help analyze the relationship between positive feedback, negative feedback, and no feedback. The

analysis process consists of 2 (pre and posttest) x 3 (positive, negative, and no feedback) mixed ANOVA examining differences in confidence.

The data analysis process in this study involved two stages, which are descriptive analysis and hypothesis testing with mixed ANOVA. The descriptive analysis involves an examination of the distribution of data. In this study, the descriptive analysis refers to the evaluation of statistical values, such as mean, standard deviation, and other measures of distribution. Based on this, I was able to see whether there is a relationship between the independent variables and the dependent variable. A mixed ANOVA test was conducted to analyze the data gathered from the experiments and generate results. A mixed ANOVA test was conducted since this study involves three independent variables, (i.e. positive nonverbal feedback, negative nonverbal feedback, and no feedback). The impact of these independent variables on the dependent variable, (i.e. eyewitness confidence level is compared, Field, 2009).

Reliability and Validity

Reliability refers to the extent to which an assessment tool leads to stable and consistent results. In this study, an internal consistency test was performed in the study to ensure the results are stable and consistent (Fowler, 2014). Internal consistency reliability refers to the measure of reliability that is obtained through numerous questions with different possible levels of a response to a group of individuals. The validity of this study was based on face validity and published research that reports the measure used in similar studies (Fowler, 2014). Cronbach's alpha was used to measure the reliability of internal consistency. Though everything cannot be covered by a single study, the study was able

to answer most of the research questions due to the adequacy of the sample. I also acknowledge that confidence is a subjective variable.

The measuring of confidence procedure for this research was based on those implemented by Wells and Bradfield (1998); Douglass et al. (2010); and Steblay et al. (2014), it will consist of a similar 13 item questionnaire. Similar Likert scales have been used in numerous other studies, such as; Bradfield et al., 2002; Gurney, 2014; Semmler & Wells, 2014; Wells & Bradford, 1998; Wells & Quinlivan, 2009. These studies have all shown that the Likert scale is the best measuring tool for measuring an individual's attitudes and confidence, which are variables that are subjective within the individual it is measuring.

Ethical Considerations

This study involved human participants. As such, I must adhere to ethical research principles required for this type of study (Creswell, 2009). First, participation in this study was voluntary. That is, I did not use coercive tactics or undue influence for people to participate in the study. Second, participation in this study was based on the informed consent of the participants. To ensure this, I first explained the objectives of the study and why the participant should participate. I also explained what the study was being used for and if there were any risks associated with participation. Lastly, the information collected from the participants shall remain confidential and will only be used for the purposes of the current study (Fowler, 2014).

Limitations of this Study

The main limitation of this study is reliance on participants in a laboratory/controlled setting rather than people who eyewitness actual crimes. The pressure on the people who eyewitness actual crimes to make correct identifications are normally higher than in a laboratory/controlled setting with no real consequences on the person identified. I attempted to limit the impact of this study weakness by comparing the current findings with those from past studies for consistency and generalization purposes.

This study is a quantitative study focusing on the significance of the influence of nonverbal postidentification feedback on the eyewitness's confidence levels. However, I acknowledged that confidence level is a subjective variable. For example, one eyewitness might be influenced more than another by the same feedback and the results would rely mainly on estimations (Steblayet al., 2014). Furthermore, the study did not consider the qualitative aspects of the subject matter. I also acknowledged that there was a video of the crime and not a live event, which is consistent with most eyewitness experiences (Bergold & Heaton, 2018).

Chapter 4: Results

Introduction

The purpose of the study was to examine if nonverbal postidentification feedback can influence an eyewitness' confidence level after he or she has chosen a suspect from a photo lineup. Researchers long ago documented the verbal postidentification feedback effect (Wells & Bradfield, 1998; Wells et al., 2015), but there is little to no literature regarding nonverbal postidentification feedback. Therefore, this study aimed to examine the relationship, if any, of an eyewitness's confidence level and any postidentification feedback they received. This study was guided by these research questions:

1. Does positive nonverbal postidentification feedback influence eyewitness confidence?

2. Does negative nonverbal postidentification feedback influence eyewitness confidence?

In Chapter 4, I describe the demographic characteristics of the sample and present results from the mixed ANOVA from the two questionnaires that were administered. A review of the comparison of the in-between groups for a relationship will be examined. The institutional review board of Walden University (# 09-12-19-0494636) has approved data collection for this research study.

Research Questions and Hypotheses

The first research question for this study addressed whether positive, nonverbal feedback could influence an eyewitness's confidence level. The second research question addressed whether negative nonverbal feedback could also influence an eyewitness's

confidence level. For both of these questions, the null hypothesis was that there is no relationship between the type of feedback an eyewitness receives and their confidence level. The alternative hypothesis was that there is a relationship between the feedback an eyewitness receives and their confidence level.

Data Collection

For this study, I attempted to use random sampling to better generalize the population by using flyers and approaching anybody over the age of 18 who spoke English as a first language to participate. The represented sample size was 66. This random sampling was taken from a local public park for recruitment purposes. This study consisted of participants who were mostly female (64%; $n = 42$) and some males (36%; $n = 24$). There were 37 Caucasian, 20 Hispanic, 2 African American, and 7 Asian participants. The age range was 20-59 years of age. No information was collected about a participant's education level. The study was conducted in 11 sessions, using six participants for each session. Each session varied in time but took no longer than 12 minutes. A total of 22 ($n = 22$) participants were randomly put into each of the three intervention groups (positive, negative, no feedback).

Results

In total, I recruited 66 participants for this project, 22 participants for each of the intervention groups. Additionally, I assessed the normality of the total scores of pre and post measures and the items within the measures. The results, as can be seen in Tables 1 – 3, indicated that the data are not normally distributed.

Table 1

Pre Intervention – Item Tests of Normality

	Kolmogorov – Smirnov			Shapiro - Wilk		
	Statistic	df	p	Statistic	df	p
Confidence in ID	0.30	66	0.00	0.76	66	0.00
Willing to testify	0.32	66	0.00	0.78	66	0.00
Basis of making ID	0.28	66	0.00	0.84	66	0.00
Ease of ID	0.33	66	0.00	0.76	66	0.00
Clear image of suspect in memory	0.38	66	0.00	0.63	66	0.00
Trust other witnesses	0.29	66	0.00	0.77	66	0.00
Facial details	0.34	66	0.00	0.76	66	0.00
View of suspect	0.30	66	0.00	0.78	66	0.00
Time Taken to make ID	0.26	66	0.00	0.79	66	0.00
Good memory of strangers	0.29	66	0.00	0.84	66	0.00
How much attention	0.38	66	0.00	0.72	66	0.00
Amount of viewing time	0.33	66	0.00	0.80	66	0.00
View from distance	0.30	66	0.00	0.83	66	0.00

Table 2

Post Intervention – Item Tests of Normality

	Kolmogorov – Smirnov			Shapiro - Wilk		
	Statistic	*df*	*p*	Statistic	*df*	*p*
Confidence in ID	0.25	66	0.00	0.86	66	0.00
Willing to testify	0.23	66	0.00	0.87	66	0.00
Basis of making ID	0.27	66	0.00	0.86	66	0.00
Ease of ID	0.30	66	0.00	0.82	66	0.00
Clear image of suspect in memory	0.23	66	0.00	0.88	66	0.00
Trust other witnesses	0.22	66	0.00	0.87	66	0.00
Facial details	0.24	66	0.00	0.86	66	0.00
View of suspect	0.27	66	0.00	0.84	66	0.00
Time Taken to make ID	0.27	66	0.00	0.85	66	0.00
Good memory of strangers	0.23	66	0.00	0.85	66	0.00
How much attention	0.36	66	0.00	0.78	66	0.00
Amount of viewing time	0.22	66	0.00	0.88	66	0.00
View from distance	0.20	66	0.00	0.88	66	0.00

Table 3

Pre and Post Total Score Tests of Normality

	Kolmogorov – Smirnov			Shapiro - Wilk		
	Statistic	df	p	Statistic	df	p
PRESCORE	0.13	66	0.01	0.97	66	0.06
PRESCOREAVERAGE	0.13	66	0.01	0.97	66	0.06
POSTSCORE	0.11	66	0.04	0.95	66	0.01
POSTSCOREAVERAGE	0.11	66	0.04	0.95	66	0.01

I also assessed the descriptive characteristics of the items within the pre and post

iterations of the measures (see Tables 4 and 5). Additionally, I noted the increase in mean

scores for each item within the measure between the pre and post intervention

assessments. Given the results of these analyses, I proceeded to assess the reliability of

the pre and post items within the measure.

Table 4

Pre Intervention Total Scale and Item Descriptive Statistics

	N	Min	Max	M	SD
PRESCORE	66	400.00	1025.00	743.18	139.20
PRESCOREAVERAGE	66	30.77	78.85	57.17	10.71
Confidence in ID	66	25.00	75.00	59.09	16.78
Willing to testify	66	25.00	100.00	58.71	15.50
Basis of making ID	66	25.00	100.00	53.79	18.73
Ease of ID	66	25.00	75.00	54.55	15.13
Clear image of suspect in memory	66	50.00	75.00	60.61	12.45
Trust other witnesses	66	25.00	75.00	58.71	16.69
Facial details	66	25.00	100.00	58.71	14.87
View of suspect	66	25.00	100.00	60.98	15.89
Time Taken to make ID	66	25.00	75.00	55.30	17.27
Good memory of strangers	66	25.00	100.00	52.27	18.46
How much attention	66	25.00	75.00	54.17	13.58
Amount of viewing time	66	25.00	100.00	60.23	16.39
View from distance	66	25.00	100.00	56.06	17.57

Table 5

Post Intervention Total Scale and Item Descriptive Statistics

	N	Min	Max	M	SD
PRESCORE	66	425.00	1200.00	807.58	222.05
PRESCOREAVERAGE	66	32.69	92.31	62.12	17.08
Confidence in ID	66	25.00	100.00	66.29	22.57
Willing to testify	66	25.00	100.00	61.74	21.13
Basis of making ID	66	25.00	100.00	62.88	22.89
Ease of ID	66	25.00	100.00	64.02	18.15
Clear image of suspect in memory	66	25.00	100.00	61.74	22.45
Trust other witnesses	66	25.00	100.00	66.29	24.61
Facial details	66	25.00	100.00	68.94	21.51
View of suspect	66	25.00	100.00	60.61	18.64
Time Taken to make ID	66	25.00	100.00	60.23	18.59
Good memory of strangers	66	25.00	100.00	51.14	23.79
How much attention	66	25.00	100.00	57.95	17.07
Amount of viewing time	66	25.00	100.00	65.53	23.11
View from distance	66	25.00	100.00	60.23	24.01

I assessed the reliability of the measures collected in the pre and post intervention phase of the research project. The internal consistency of the items collected within the measure suggested that there is an above acceptable level of reliability within the data ($\alpha = 0.893$, $N = 13$). Furthermore, the results indicated that the internal – consistency within the data could not be improved if specific items were deleted (see Table 6).

Table 6

Pre Intervention Reliability Results

	Scale mean if item deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's if Item Deleted
Confidence in ID	684.09	16050.70	0.72	0.88
Willing to testify	684.47	16533.95	0.65	0.88
Basis of making ID	689.39	15981.93	0.64	0.88
Ease of ID	688.64	16657.34	0.64	0.88
Clear image of suspect in memory	682.58	17864.80	0.41	0.89
Trust other witnesses	684.47	16149.33	0.69	0.88
Facial details	684.47	17033.95	0.55	0.89
View of suspect	682.20	16591.64	0.62	0.88
Time Taken to make ID	687.88	16139.28	0.67	0.88
Good memory of strangers	690.91	16416.08	0.55	0.89
How much attention	689.02	17694.78	0.41	0.89
Amount of viewing time	682.95	16618.44	0.59	0.88
View from distance	687.12	16812.35	0.49	0.89

As such, when computing the total score for the analysis I elected to include all items within the pre measure. Additionally, I assessed the post intervention iterations of the assessment. Again, the data indicated an above acceptable level of reliability for the items within the post intervention iteration of the assessment ($\alpha = 0.951$, $N = 13$). Furthermore, the results indicated that the internal – consistency within the data could not be improved if specific items were deleted (see Table 7). As such, when computing the total score for the analysis I elected to include all items within the post measure.

Table 7

Post Intervention Reliability Results

	Scale mean if Item deleted	Scale variance if Item deleted	Corrected Item-Total Correlation	Cronbach's if Item deleted
Confidence in ID	741.29	41317.16	0.82	0.94
Willing to testify	745.83	42126.60	0.78	0.95
Basis of making ID	744.70	41798.37	0.75	0.95
Ease of ID	743.56	43275.20	0.76	0.95
Clear image of suspect in memory	745.83	41222.76	0.83	0.94
Trust other witnesses	741.29	40528.70	0.82	0.94
Facial details	738.64	41715.03	0.81	0.94
View of suspect	746.97	43586.83	0.69	0.95
Time Taken to make ID	747.35	44040.94	0.63	0.95
Good memory of strangers	756.44	41140.59	0.79	0.95
How much attention	749.62	44817.16	0.58	0.95
Amount of viewing time	742.05	41849.21	0.73	0.95
View from distance	747.35	41002.48	0.79	0.95

I elected to use a mixed between and within Analysis of Variance (ANOVA) to test the hypotheses associated with the research question. The results of the analysis indicated that there was a significant interaction effect between the pre and post intervention scores and the independent variable of the group within the intervention: $\lambda = .146$, $F(2, 63) = 183.663$, $p < 0.001$. The size of the effect associated with this difference was large ($\eta^2 = 0.854$). There was a main effect for time: $\lambda = .756$, $F(1, 63) = 20.340$, $p < 0.001$. The size of the main effect associated with time was large ($\eta^2 = 0.244$). This result suggested that there was a significant difference in the scores between the pre and post iterations of the measure. The between groups test indicated that there were significant differences between the groups: $F(2, 63) = 19.157$, $p < 0.001$. The size of the effect associated with the differences between the groups was large ($\eta^2 = 0.378$). This suggests that the means for summed scores on items across the pre and post iterations of

the measure between the groups. Post hoc analyses indicated that there were significant differences between the groups. Specifically, the positive feedback group had the largest increase from pre to post. Second, the negative feedback group had the largest decrease from pre to post. Interestingly, the no feedback group had little to no change in mean scores between the pre to post iterations of the measure (See Table 8 and Figure 1).

Table 8

Pre and Post Intervention Mean Scores by Intervention Groups

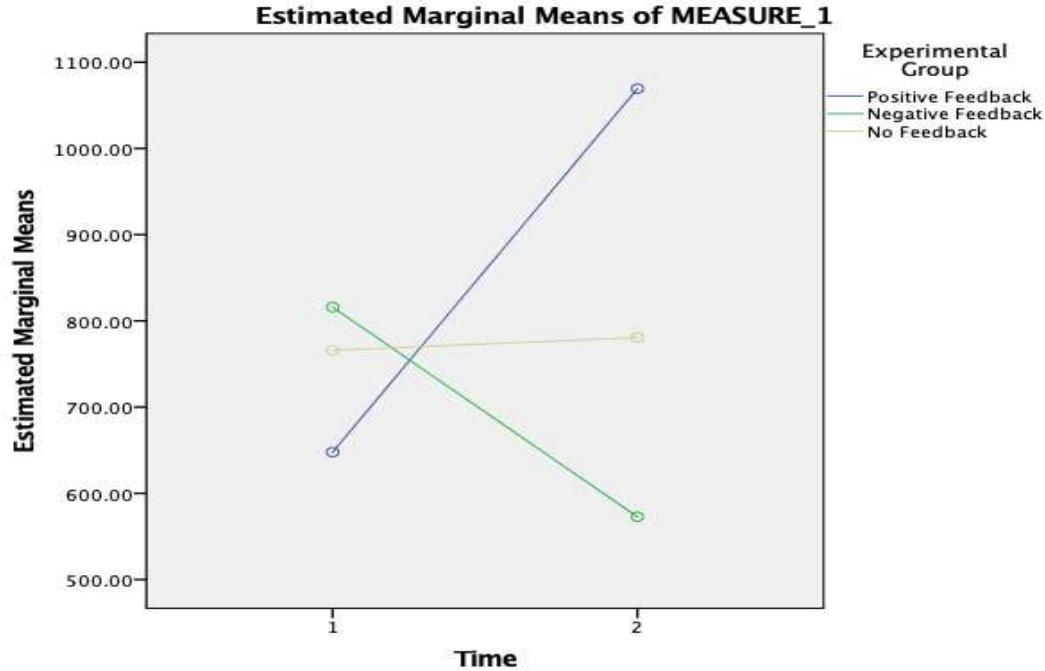|	Pre Intervention M Score	Post Intervention M Score
Total	743.18	807.58
Positive Feedback	647.73	1069.32
Negative Feedback	815.91	572.72
No Feedback	765.91	780.69

Figure 1. Estimated marginal means

I also conducted individual tests of mean differences for each group individually using a Bonferroni adjustment given that three tests were conducted. I divided the standard level of statistical significance ($p < 0.05$) by three and used this significance level to interpret individual tests ($p < 0.02$). The results indicated a significant difference in the pre ($M = 647.73$, $SD = 142.86$) and post ($M = 1069.32$, $SD = 69.41$) scores for the positive feedback group: $t(21) = -16.010$, $p < 0.001$. The size of the effect was large ($\eta^2 = 0.924$). The results also indicated a significant difference in the pre ($M = 815.91$, $SD = 137.27$) and post ($M = 572.73$, $SD = 107.71$) score for the negative affect group: $t(21) = 7.400$, $p < 0.001$. The size of the effect was large ($\eta^2 = 0.713$). Interestingly, the results indicated that there was not a statistically significant difference between the pre ($M =$

765.91, $SD = 71.36$) and post ($M = 780.68$, $SD = 76.74$) score for no feedback group:

$t(21) = -1.887$, $p = 0.073$. This suggests the scores significant increase for the positive

affect group and significantly decreased for the negative affect group. Taken together, the

results of these statistical tests provide evidence to reject the null hypothesis and accept

the null hypothesis in that the type of feedback an eyewitness received does influence

their confidence.

Summary

This quantitative data research was conducted to determine if postidentification

nonverbal feedback can have an effect on an individual's confidence level. From the

results, the mixed ANOVA suggests there is significance within the pre and post-

intervention tests. There was a significant increase in the positive affect group and a

significant decrease in the negative affect group. These results indicate that possible

nonverbal feedback might have some relation to verbal postidentification feedback effect.

As stated before, there is little research on nonverbal postidentification feedback.

Further research and understanding is needed in this field on nonverbal suggestibility

when it comes to feedback after a photo lineup is conducted. Chapter 5 will discuss the

interpretations of the findings, limitations, implications, and recommendations of the

research.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In examining whether nonverbal postidentification feedback can influence an eye eyewitness's confidence, I conducted a study between the dependent variable (eyewitness confidence level) and the independent variables (positive, negative, and no nonverbal feedback). The results of the study showed that the type of feedback given had a statistically significant impact on post confidence ratings. Specifically, negative feedback lowered confidence, positive feedback increased confidence, and no feedback had no impact on post confidence ratings.

Interpretation of the Findings and Discussions

This study found that positive feedback resulted in a large increase in mean scores of change of identification from pre to post feedback, whereas negative feedback caused a large decrease from pre to post feedback. The study also found that in groups where there was no feedback given, the change in mean scores between pre- and posttests was negligible. This shows that both positive and negative feedback after the first identification does have an impact on an eyewitness. This finding supported the argument that any form of feedback received would have a significant impact on the confidence level of an eyewitness. This study, therefore, supported the findings from the few past studies on the postidentification feedback effect (verbal) that had found that common nonverbal behavior, such as nodding or shaking the head can potentially affect the confidence level of the eyewitness and thus influence their later judgments (Brewer et al., 2018; Patihis et al., 2018; Quinlivan, 2016). From the analysis, it is evident that

eyewitnesses who receive positive feedback were more confident in their identification. Those who received negative feedback regarding their identification were less confident in their identification. In some studies, the study participants confirmed that they were aware of the feedback received and it could have influenced the judgments (Gurney et al., 2014; Mueller, 2015). Further analysis confirmed that there was a considerable difference in the confidence scores between positive feedback, negative feedback, and no feedback.

Focusing on specific feedback conditions, the study suggested that the eyewitnesses who received positive nonverbal feedback will have a higher confidence level. This finding is consistent with a past study that found notable differences in how various types of verbal feedback can impact individuals on the experimental group (Wells et al., 2015). The study indicated that the difference in confidence levels tend to be biased towards the negative group and the positive feedback group. That is, eyewitnesses who received negative feedback from their identification are likely to be more biased in their future judgment when testifying in court compared to those who received no feedback. Given the consistency of these findings, it is therefore important to examine the conditions under which different feedback groups make their judgments. Similarly, Odinot et al. (2013) showed that even participants who had indicated that they were conscious of the feedback and the consequences it may have on their decisions were still not immune to the effects of verbal feedback on their judgments.

Manipulation of an empirical study such as this may be difficult. Interviewers could exhibit some nonverbal expressions in an actual interview scenario even when they do not expect to influence the identification. This is considered indirect suggestibility

(Dysart et al., 2012). These expressions can come in the form of a smile or a head nod and depend on the interpretations of the eyewitness (Gurney et al., 2014). Therefore, even in groups where no feedback is given in experiments, in reality, the eyewitness may interpret some expressions from the interviewer leading to an influence on their decisions. Dysart et al. (2012) confirmed that when people are speaking they subconsciously produce some forms of hand gestures or facial expressions for intrapersonal purposes. When the interviewer produces these nonverbal cues, the eyewitness will still be able to ascertain some communicative content from it and make their judgments based on their interpretation. Consequently, this study confirmed that any type of feedback can influence the confidence level of the eyewitness. However, the extent and direction of the feedback differed depending on the form of feedback received.

Limitations of the Study

The main obstacle I encountered in this study was the difficulty of convincing participants to take part in the experiment. Many potential participants who were approached face to face showed a lack of interest in the study. I do not know why such lack of interest was initially exhibited by potential participants. In addition, other participants were suspicious of the nature of this study and getting prior commitment of all participants for the entire duration of the study was also challenging. The sample size which was used mirrors as a representative of the entire population of eyewitnesses. In reality, an eyewitness can be of any gender, race, ethnicity, religion, or age. There is no discrimination when it comes to who can be an eyewitness.

Implications in Theory and Practice

This research confirmed that confidence is a subjective variable and is not only influential but also informative in certain conditions during the process of the identification process of crime suspects. In this case, confidence levels of eyewitnesses should be recorded and considered when assessing the identification evidence. Smalarz and Wells (2014) questioned the reluctance within the criminal justice systems to design systematic tools to elicit and record and maximize the informational value of the eyewitness confidence levels. Currently, researchers can only speculate about the confidence ratings of various eyewitnesses. With the findings from this study and other past studies ((Blank & Launay, 2014; Gabbert et al., 2003; Gudjonsson, 2017; Gurney, 2006; Gurney et al., 2014; Wells et al., 2015) legal practitioners, criminal justice, and mental health professionals must acknowledge that an eyewitness either can identify a suspect or cannot. In this case, confidence ratings are irrelevant as they will offer no further information. Smith et al. (2014) found that changes in identification are attributed to either an increase or decrease in the confidence levels of eyewitnesses. Therefore, confidence ratings are important in understanding whether the changes in identification among eyewitnesses are valid and reliable or not.

On the other hand, practitioners can assume that identifications by eyewitnesses are done in complete certainty. In this regard, uncertain identifications are of no value to the specific case. For instance, eyewitnesses who change their identifications during the course of the process should be assumed to have made uncertain identifications. Uncertain identifications also encompass identifications made with a lower level of

confidence thus can be easily undermined by the defense (Dodson & Dobolyi, 2015). Though this approach may be right, it is not appropriate to ignore the confidence of the eyewitness completely. In this case, all identifications should be presented even if the evidence points to the contrary. This way, the process will not undermine the informational value of an eyewitness's confidence and help in not having a biased case. These findings can, therefore, benefit the criminal justice and legal system by improving the amount of information available from the eyewitness memory and by considering all information objectively without only considering only the guilt of the suspect or defendant.

Meanwhile, the study found that the confidence level of the eyewitness could have a significant impact on nonverbal postidentification feedback. This shows that the confidence level of the eyewitness does not determine whether they will make the correct or wrong identification. In this regard, the criminal justice system should establish boundary conditions such as new policies restricting use of verbal feedback and possibly using a double-blind photo lineup for the confidence procedure. This is to assist in further investigations and minimize the errors associated with the current and conventional identification practices. For instance, the criminal justice system should avoid using suggestable influences such as verbal (spoken) and nonverbal (head nod, smile, or head shake) feedback to thus compromise the ability of the eyewitness to match a lineup member with their memory of the culprit due to the construct of bias created in their minds. As highlighted in previous studies (Wells, 2018; Wells et al., 2015; Wells & Bradfield, 1998), the confidence procedure provides investigation agencies with valuable

information regarding the extent to which the suspect matches the eyewitness's memory

of the culprit. The similarity of the suspect to the eyewitness's memory is commonly

relative to other lineup members (Erickson et al., 2016). According to Bedillion (2017),

confidence procedure is not just about an eyewitness picking or rejecting a suspect but

should also help the police and courts to minimize the chances of the suspect/culprit

going free or an innocent person getting convicted.

Conclusions and Recommendations for Further Research

This study evaluated the relationship between the eyewitness pre- and post-

feedback identification. The study found that positive feedback strengthened the

eyewitness' initial position while negative feedback motivated the eyewitness to doubt

their initial position. This finding added to the literature base that eyewitness memory can

easily become unreliable due to external influences, such as nonverbal cues, including

head nods and facial expressions (Gurney et al., 2014). Contaminated eyewitness

memory is not reliable and should not be admitted into the courts. However, to determine

a contaminated memory, I suggest that the criminal justice system should establish a

reliable model to determine the eyewitness' confidence ratings so as not to undermine the

validity of evidence. This model could consist of best practices and policy and procedures

that are put into play to protect the validity of the process of an eyewitness identification.

This model would consist of a specific admonishment given to the eyewitness in

conjunction with a double blind photo lineup procedure. Instead of disregarding the

eyewitness judgment, the criminal justice system should look at the informational value

of the initial identification which should be conducted as a double blind photo lineup.

This should therefore minimize any suggestibility the eyewitness might be subjected to by various external influences.

      Given the findings of the current study, I suggest a further study aimed at exploring other ways of conducting a fair and unbiased identification process free of direct or indirect suggestibility. Though the current and conventional eyewitness identification system asks eyewitnesses how confident they are of the identification they have made, Charman and Quiroz (2016) found that collecting an eyewitness confidence statement for each lineup generated more information towards an objective recognition than when only one lineup member is selected. In Wixted and Wells (2017), it was suggested that the eyewitness should not select someone from the lineup but instead make a confidence judgment regarding when each lineup member can be the perpetrator. Eyewitnesses can also be asked to rate how well each of the faces in the lineup matches the memory of the perpetrator. Results from profile analyses and classification algorithms showed that the proposed methods can lead to more accurate identification compared to the conventional eyewitness identification procedures (Bang et al., 2017). In this regard, future research should focus on determining the accuracy of various eyewitness identification approaches with the aim of determining the most effective and standardized strategy.

References

Bang, D., Aitchison, L., Moran, R., Castanon, S., Rafiee, B., Mahmoodi, A.,

Summerfield, C. (2017). Confidence matching in group decision making. *Nature Human Behaviour, 1*(1), 1-17. doi:10.1038/s41562-017-0117

Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology.* New York, NY: Cambridge University Press.

Bedillion, C. (2017). The effects of the verbal overshadowing effect and independently creating composite sketches on eyewitness identification accuracy. Retrieved from https://dspace.allegheny.edu/bitstream/handle/10456/45385 /The%20effects%20of%20verbal%20overshadowing%20effect%20and%20indep endently%20creating%20composite%20sketches%20on%20eyewitness%20identi fication%20accuracy.pdf?sequence=1&isAllowed=y

Berkowitz, S. R., & Loftus, E. F. (2018). Misinformation in the courtroom. In H. Otgaar & M. L. Howe (Eds.), *Finding the truth in the courtroom: Dealing with deception, lies, and memories* (pp. 11-30). New York, NY: Oxford University Press.

Blank, H., & Launay, C. (2014). Literature review: How to protect eyewitness memory against the misinformation effect: A meta-analysis of post-warning studies. *Journal of Applied Research in Memory and Cognition, 3*, 77–88. doi:10.1016/j.jarmac.2014.03.005

Boydell, C. A., Barone, C. C., & Read, J. D. (2013). 'You caught 'em!'…or not? Feedback affects investigators' recollections of speech cues thought to signal

honesty and deception. *Legal and Criminological Psychology*, *18*(1), 128-140. doi:10.1111/j.2044-8333.2011.02037.x

Bradfield, A. L., Wells, G. L., & Olson, E. A. (2002). The damaging effect of confirming feedback, the relation between eyewitness certainty and identification accuracy. *Journal of Applied Psychology*, *87*(1), 112-120. doi:10.1037/0021-9010.87.1.112

Brewer, N., Vagadia, A. N., Hope, L., & Gabbert, F. (2018). Interviewing eyewitnesses: Eliciting coarse-grain information. *Law and Human Behavior, 42*, 458–471. doi:10.1037/lhb0000294

Charman, S. D., & Quiroz, V. (2016). Blind sequential lineup administration reduces both false identifications and confidence in those false identifications. *Law and Human Behavior*, *40*(5), 477-487. doi:10.1037/lhb0000197

Charman, S. D., & Wells, G. L. (2008). Can eyewitnesses correct for external influences on their lineup identifications? The actual/counterfactual assessment paradigm. *Journal of Experimental Psychology: Applied*, *14*(1), 5-20. doi:10.1037/1076-898X.14.1.5

Charman, S. D., & Wells, G. L. (2012). The moderating effect of euphoric experience on post-identification feedback: A critical test of the cues-based inference conceptualization. *Applied Cognitive Psychology*, *26*(2), 243-250. doi:10.1002/acp.1815

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods*

approaches (Laureate Education, Inc., custom ed.). Thousand Oaks, CA: Sage.

Dixon, S., & Memon, A. (2005). The effect of post-identification feedback on the recall of crime and perpetrator details. *Applied Cognitive Psychology*, *19*(7), 935-951. doi:10.1002/acp.1132

Dodson, C. S., & Dobolyi, D. G. (2015). Misinterpreting eyewitness expressions of confidence: The featural justification effect. *Law and Human Behavior, 39*(3), 266-282. doi:10.1037/lhb0000120

Douglass, A. B., & McQuiston-Surrett, D. (2006). Post-identification feedback: Exploring the effects of sequential photo spreads and eyewitnesses' awareness of the identification task. *Applied Cognitive Psychology, 20*(8), 991-1007. doi:10.1002/acp.1253

Douglass, A. B., Neuschatz, J. S., Imrich, J., & Wilkinson, M. (2010). Does post-identification feedback affect evaluations of eyewitness testimony and identification procedures? *Law and Human Behavior*, *34*(4), 282-294. doi:10.1007/s10979-009-9189-5

Douglass, A. B., & Steblay, N. (2006). Memory distortion in eyewitnesses: A meta-analysis of the post-identification feedback effect. *Applied Cognitive Psychology, 20*(7), 859-869. doi:10.1002/acp.1237

Dysart, J. E., Lawson, V. Z., & Rainey, A. (2012). Blind lineup administration as a prophylactic against the post-identification feedback effect. *Law and Human Behavior*, *36*(4), 312-319. doi:10.1037/h0093921

Erickson, W. B., Lampinen, J. M., Wooten, A., Wetmore, S., & Neuschatz, J. (2016).

When Snitches Corroborate: Effects of Post-identification Feedback from a Potentially Compromised Source. *Psychiatry Psychology and Law*, *23*(1), 148–160. https://doi:10.1080/13218719.2015.1035623

Field, A. P. (2009). *Discovering statistics using SPSS: (and sex and drugs and rock 'n' roll)*. Los Angeles. Thousand Oaks, CA: SAGE.

Fitzgerald, R. J., Oriet, C., & Price, H. L. (2015). Suspect filler similarity in eyewitness lineups: A literature review and a novel methodology. *Law and Human Behavior, 39*(1), 62-74. doi:10.1037/lhb0000095

Fitzgerald, R. J., Price, H. L., & Valentine, T. (2018). Eyewitness Identification: Live, Photo, and Video Lineups. *Psychology Public Policy and Law*, *24*(3), 307–325. doi:10.1037/law0000164

Fowler, F. J. (2014). *Survey research methods*. Boston, MA. Thousand Oaks: Sage.

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). New York, NY: Worth.

Gabbert, F., Memon, A., & Allan, K. (2003). Memory conformity: Can eyewitnesses influence each other's memories for an event? *Applied Cognitive Psychology*, *17*(5), 533-543. doi:10.1002/acp.885

Gabbert, F., Memon, A., Allan, K., & Wright, D. B. (2004). Say it to my face: Examining the effects of socially encountered misinformation. *Legal & Criminological Psychology*, *9*(2), 215-227. doi:10.1348/1355325041719428

Gawrylowicz, J., Memon, A., Scoboria, A., Hope, L., & Gabbert, F. (2014). Enhancing older adults' eyewitness memory for present and future events with the Self-

Administered Interview. *Psychology and Aging, 29*(4), 885-890.
doi:10.1037/a0038048

Gravitz, M. A. (2009). Professional ethics and national security: Some current issues.
Consulting Psychology Journal: *Practice and Research, 61*(1), 33-42.
doi:10.1037/a0015281

Gudjonsson, G. (2017). Memory distrust syndrome, confabulation, and false confession.
Cortex, 87, 156-165. doi:10.1016/j.cortex.2016.06.013

Gurney, D. J. (2006). What's left unsaid: How nonverbal influence compares to verbal
influence. *Compares with Verbal Influence, Psychiatry, Psychology and
Law*, *22*(3), 465-473, doi:10.1080/13218719.2014.985624

Gurney, D. J., Vekaria, K. N., & Howlett, N. (2014). A Nod in the Wrong Direction:
Does Non-verbal Feedback Affect Eyewitness Confidence in Interviews.
Psychiatry, Psychology and Law, 21(2), 241-250,
doi:10.1080/13218719.2013.804388

Hafstad, G. S., Memon, A., & Logie, R. (2004). Post-identification feedback, confidence,
and recollections of eyewitnessing conditions in child eyewitnesses. *Applied
Cognitive Psychology*, *18*(7), 901-912. doi:10.1002/acp.1037

Horry, R., Halford, P., Brewer, N., Milne, R., & Bull, R. (2014). Archival analyses of
eyewitness identification test outcomes: What can they tell us about eyewitness
memory? *Law and Human Behavior, 38*(1), 94-108. doi:10.1037/lhb0000060

Houston, K. A., Clifford, B. R., Phillips, L. H., & Memon, A. (2013). The emotional
eyewitness: The effects of emotion on specific aspects of eyewitness recall and

recognition performance. *Emotion, 13*(1), 118-128. doi:10.1037/a0029220

Jaschinski, U., & Wentura, D., (2002). Misleading post-event information and working

memory capacity: an individual differences approach to eyewitness memory.

Applied Cognitive Psychology, 16(2), 223-231. doi:10.1002/acp.783

Kassin, S. M., Tubb, V. A., Hosch, H. M., &Memon, A. (2001). On the "general

acceptance "of eyewitness testimony research: A new questionnaire of the

experts. *American Psychologist*, *56*(5), 405-416. doi:10.1037/0003-

066X.56.5.405

Kovera, M. B., & Evelo, A. J. (2017). The case for double-blind lineup administration.

Psychology, Public Policy, and Law, 23, 421–437. doi:10.1037/law0000139

Kraus, U., Zeier, F., Wagner, W., Paelecke, M., & Hewig, J. S. (2017). Comparing the

quality of memory reports in different initial eyewitness questioning approaches.

Cogent Psychology, *4*, 143–163. doi:10.1080/23311908.2017.1403063

Lampinen, J. M., Scott, J., Pratt, D., Leding, J. K., & Arnal, J. D. (2007). "Good, you

identified the suspect...but please ignore this feedback": Can warnings eliminate

the effects of post-identification feedback?. *Applied Cognitive Psychology, 21*(8),

1037-1056. doi:10.1002/acp.1313

Loftus, E. F. (1975). Leading questions and the eyewitness report. *Cognitive Psychology,

7*(4), 560-572.doi:10.1016/0010-0285(75)90023-7

Loftus, E. F. (2018). Eyewitness Science and the Legal System. *Annual Review of Law

and Social Science*, *14*(1), 1-10. doi:10.1146/annurev-lawsocsci-101317-030850

Loftus, E. F., & Palmer, J. C. (1974). Reconstruction of automobile destruction: An

example of the interaction between language and memory. *Journal of Verbal Learning and Verbal Behavior, 13*(5), 585-589. doi:10.1016/s0022-5371(74)80011-3

Loftus, E. F., & Palmer, J. C. (1996). Eyewitness Testimony. *Introducing Psychological Research, 13*(5), 305-309. doi:10.1007/978-1-349-24483-6_46

Loftus, E. F., & Pickrell, J. E. (1995). The Formation of False Memories. *Psychiatric Annals, 25*(12), 720-725. doi:10.3928/0048-5713-19951201-07

McBurney, D., & White, T. L. (2013). *Research methods*. Belmont, CA: Wadsworth Cengage Learning.

McCullough, M. L. (2002). "Do not discount lay opinion": Comment. *American Psychologist, 57*(5), 376-377. doi:10.1037/0003-066X.57.5.376b

Mecklenburg, S. H., Bailey, P. J., & Larson, M. R. (2008). The Illinois field study: A significant contribution to understanding real world eyewitness identification issues. *Law and Human Behavior, 32*(1) 22-27. doi:10.1007/s10979-007-9108-6

Mueller, D. E. (2015). The Effects of Post-Recall Feedback: Examining Eyewitness Recall Quantity, Accuracy, and Confidence. FIU Electronic Theses and Dissertations. Retrieved from http://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=3262&context=etd

Neuschatz, J. S., Lawson, D. S., Fairless, A. H., Powers, R. A., Neuschatz, J. S., Goodsell, C. A., & Toglia, M. P. (2007). The mitigating effects of suspicion on post-identification feedback and on retrospective eyewitness memory. *Law and Human Behavior, 31*(3), 231-247. doi:10.1007/s10979-006-9047-7

Neuschatz, J. S., Preston, E. L., Burkett, A. D., Toglia, M. P., Lampinen, J. M., Neuschatz, J. S., & Goodsell, C. A. (2005). The effects of post-identification feedback and age on retrospective eyewitness memory. *Applied Cognitive Psychology, 19*(4), 435-453. doi:10.1002/acp.1084

Odinot, G., Wolters, G., & Van Giezen, A. (2013) Accuracy, confidence and consistency in repeated recall of events. *Psychology, Crime & Law, 19(7)*, 629-642, doi: 10.1080/1068316X.2012.660152

Pallier, G., Wilkinson, R., Danthiir, V., Kleitman, S., Knezevic, G., Stankov, L., & Roberts, R. (2002). The Role of Individual Differences in the Accuracy of Confidence Judgments, *The Journal of General Psychology, 129*(3),257-299, doi:10.1080/00221300209602099

Palmer, M. A., Brewer, N., & Weber, N. (2010). Post identification Feedback Affects Subsequent Eyewitness Identification Performance. *Journal of Experimental Psychology: Applied, 16*(4), 387-398. doi:10.1037/a0021034

Patihis, L., Frenda, S., & Loftus, E. F. (2018). False memory tasks do not reliably predict other false memories. *Psychology of Consciousness: Theory, Research, and Practice, 5*(2), 140-160. doi:10.1037/cns0000147

Pirmoradi, M., &Mckelvie, S. (2015). Feedback, confidence, and false recall in the DRMRS procedure. *Current Psychology, 34*(2), 248-267. doi:10.1007/s12144-014-9255-0

Quinlivan, D. S., Neuschatz, J. S., Douglass, A. B., Wells, G. L., & Wetmore, S. A. (2012). The effect of post-identification feedback, delay, and suspicion on

accurate eyewitnesses. *Law and Human Behavior*, *36*(3), 206-214.

doi:10.1037/h0093970

Quinlivan, D. S., Neuschatz, J. S., Jimenez, A., Cling, A. D., Douglass, A. B., &

Goodsell, C. A. (2009). Do prophylactics prevent inflation? Post-identification

feedback and the effectiveness of procedures to protect against confidence-

inflation in eyewitnesses. *Law and Human Behavior*, *33*, 111-121.

doi:10.1007/s10979-008-9132-1

Quinlivan, D.S., Wells, G. L., Neuschatz, J. S., Luecht, K. M., Cash, D. K. & Key, K. N.

(2016). The effects of pre-admonition suggestions on eyewitnesses' choosing

rates and Retrospective identification judgments. *Police and Criminal*

Psychology, 32(4), 236-246. doi:10.1007/s11896-016-9216-7

Sarwar, F., Alwood, C. M., & Innes-Ker, A. (2014). Effects of different types of forensic

information on eyewitness' memory and confidence accuracy. *The European*

Journal of Psychology Applied to Legal Context, 6(1), 17-27.

doi:10.5093/ejpalc2014a3

Semmler, C., & Brewer, N. (2006). Post-identification feedback effects on face

recognition confidence: Evidence for meta-cognitive influences. *Applied*

Cognitive Psychology, *20*(7), 895-916. doi.org/10.1002/acp.1238

Semmler, C., Brewer, N., & Wells, G. L. (2004). Effects of Post identification Feedback

on Eyewitness Identification and Non-identification Confidence. *Journal of*

applied psychology, *89*(2), 334-346. doi:10.1037/0021-9010.89.2.334

Sharps, M. J., Janigian, J., Hess, A. B., & Hayward, B. (2008). Eyewitness Memory in

Context: Toward a Taxonomy of Eyewitness Error. *Journal of Police and Criminal Psychology. 24*(1), 36-44. doi:10.1007/s11896-008-9029-4

Shaw, D.J. (2016). *The Memory Illusion Remembering, Forgetting, and the Science of False Memory*. London, UK: Random House.

Shaw, J., & Porter, S. (2015). Constructing Rich False Memories of Committing Crime. *Psychological Science, 29*(4), 673-674. doi:10.1177/0956797614562862

Skagerberg, E. M. (2007). Co-eyewitness feedback in line-ups. *Applied Cognitive Psychology, 21*(4), 489-497. doi:10.1002/acp.128

Smalarz, L., & Wells, G. L. (2014). Post-identification feedback to eyewitnesses impairs evaluators' abilities to discriminate between accurate and mistaken testimony. *Law and Human Behavior, 38*(2), 194-202. doi:10.1037/lhb0000067

Smith, A. M., Bertrand, M., Lindsay, R. L., Kalmet, N., Grossman, D., & Provenzano, D. (2014). The impact of multiple show-ups on eyewitness decision-making and innocence risk. *Journal of Experimental Psychology: Applied*, *20*(3), 247-259. doi:10.1037/xap0000018

Smith, H. M., & Baguley, T. (2014). Unfamiliar voice identification: Effect of post-event information on accuracy and voice ratings. *Journal of European Psychology Students*, *5(1),* 59-68. doi:10.5334/jeps.bs

Steblay, N. K., Wells, G. L., & Douglass, A. B. (2014). The Eyewitness Post Identification Feedback Effect 15 Years Later: Theoretical and Policy Implications. *Psychology, Public Policy, and Law*, *20*(1), 1-18. doi:10.1037/law0000001

Szpitalak M, & Polczyk R (2019) Inducing resistance to the misinformation effect by

    means of reinforced self-affirmation: The importance of positive feedback. *Plus*

    One 14(1), 262-268. doi:10.1371/journal.pone.0210987

Walsh, D. (2013). The dangers of eyewitness identification: A call for greater state

    involvement to ensure fundamental fairness. *Boston College International and*

    Comparative Law Review, 36(2), 1415-1453. Retrieved from

    http://search.proquest.com.ezp.waldenulibrary.org/docview/1528143818?accounti

    d=14872

Weir, K. (2016). Mistaken Identity: Is eyewitness identification more reliable than we

    think? *American Psychological Association, 47*(2), 40-40. doi:10.1037/a0021311

Wells, G. L. (2018). Eyewitness identification: Reforming criminal justice: Policing.

    Psychology Publications, 42(3)*,* 259-278. doi:10.1037/lhb0000284

Wells, G. L., & Bradfield, A. L. (1998). "Good, you identified the suspect:" Feedback to

    eyewitnesses distorts their reports of the eyewitnessing experience. *Journal of*

    Applied Psychology, 83, 360–376. doi:10.1037/0021-9010.83.3.360

Wells, G. L., & Bradfield, A. L. (1999). Distortions in eyewitnesses' recollections: Can

    the post identification-feedback effect be moderated? *Psychological Science*,

    10(2), 138-144. doi:10.1111/1467-9280.00121

Wells, G. L., Olson, E. A., & Charman, S. D. (2003). Distorted retrospective eyewitness

    reports as functions of feedback and delay. *Journal Of Experimental Psychology:*

    Applied, *9*(1), 42-52. doi:10.1037/1076-898X.9.1.42

Wells, G. L., & Quinlivan, D. S. (2009). The eyewitness post-identification feedback

effect: What is the function of flexible confidence estimates for autobiographical

events? *Applied Cognitive Psychology*, *23*(8), 1153-1163. doi:10.1002/acp.1616

Wells, G. L., & Quinlivan, D. S. (2009). Suggestive eyewitness identification procedures

and the Supreme Court's reliability test in light of eyewitness science: 30 years

later. *Law and Human Behavior*, *33*(1), 1-24. doi:10.1007/s10979-008-9130-3

Wells, G. L., Steblay, N. K., & Dysart, J. E. (2015). Double-blind photo lineups using

actual eyewitnesses: An experimental test of a sequential versus simultaneous

lineup procedure. *Law and Human Behavior*, *39*(1), 1-14.

doi:10.1037/lhb0000096

West, E. & Meterko, V. (2017). Innocence Project: DNA Exonerations, 1989-2014:

Review of data and findings from the first 25 years. *Albany Law Review*, *79*(3),

717-795. Retrieved from https://search-ebscohost-

com.ezp.waldenulibrary.org/login.aspx?direct=true&db=tsh&AN=123632692&si

te=eds-live&scope=site

Wilford, M. M., Chan, J. K., & Tuhn, S. J. (2014). Retrieval enhances eyewitness

suggestibility to misinformation in free and cued recall. *Journal of Experimental

Psychology: Applied*, *20*(1), 81-93. doi:10.1037/xap0000001

Winman, A., Juslin, P., & Björkman, M. (1998). The confidence–hindsight mirror effect

in identifications and confidence in those false identifications. *Law and Human

Journal of Applied Psychology*, *87*(1), 112-120. doi:10.1037/0021-9010.87.1.112

Wixted, J. T., & Wells, G. (2017). The Relationship Between Eyewitness Confidence and

Identification Accuracy: A New Synthesis. *Psychological Science in the Public*

Interest, 18(1), 10-65. doi.org/10.1177/1529100616686966

Appendix: Questionnaire

0%= Not at all confident, 25%=Fairly confidence, 50%=Average confidence, 75%=

Good confidence, 100%=Totally confident.

1). How certain of identification?

    0%   25%   50%   75%   100%

2). Willingness to testify about identification?

    0%   25%   50%   75%   100%

3). How good of a basis for making identification?

    0%   25%   50%   75%   100%

4). Ease to make identification?

    0%   25%   50%   75%   100%

5). How clear of an image of the suspect in your memory?

    0%   25%   50%   75%   100%

6). How much would you trust another person who had a similar eyewitnessing

    experience?

    0%   25%   50%   75%   100%

7). How well can you make out the facial details of the suspect?

    0%   25%   50%   75%   100%

8). How good was your view of the suspect?

    0%   25%   50%   75%   100%

9). Amount of time taken or believe it would take to make identification?

0%   25%   50%   75%   100%

10). How good is your memory of stranger's faces?

0%   25%   50%   75%   100%

11). How much attention did you pay to the suspect during the event?

0%   25%   50%   75%   100%

12). Amount of viewing time to observe the suspect?

0%   25%   50%   75%   100%

13). View of the suspect from the distance from the camera's eye?

0%   25%   50%   75%   100%