

First impressions in familiar eyewitness identifications
improve accuracy in target absent lineups

By

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Abstract

There is evidence in the literature suggesting first impressions, though resilient, can be swayed by additional information (Baker, ten Brinke, & Porter, 2013). The purpose of this research is to investigate whether first impressions influence decisions when the target is familiar to the eyewitness, when utilizing a target-absent identification line-up. Results showed that participants in familiar conditions who received information had higher accuracy rates in comparison to individuals who received no information when making a decision. It was also found that confidence significantly fell in familiar conditions when the participant misidentified. Implications suggest the first impressions the eyewitness has does not impact the accuracy outcomes, but rather any past knowledge about the familiar individual may improve target-absent lineup accuracy. There may be some flexibility when it comes to confidence ratings, seeing a decline in a confidence rating, may allow investigators to assess accuracy in a familiar suspect situation.

Keywords:

confidence-accuracy, eyewitness identification, familiarity, first impressions, judgments

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First impressions in familiar eyewitness identifications improve accuracy in target absent lineups

On December 22, 1981, in Winnipeg, Manitoba, a young couple traveled to their favorite coffee shop, only to find it unexpectedly empty. As they approached the shop, a man wearing a cowboy hat exited. He pushed them aside and mumbled that the shop was closed. The young couple suspected that something was wrong. The young man went inside where he found a female clerk dead on the floor. He immediately rushed after the man who just left the shop and confronted him. Upon doing so, the suspect pulled a knife, giving him the opportunity to escape. It was at this moment the young couple called the police (Myers & Smith, 2015).

Thomas Sophonow was travelling from Vancouver to Winnipeg with the expectation that he would be visiting his two-year-old daughter. While visiting the city, he went Christmas shopping at several stores in the area. (Harland-Logan, 2015). During the investigation of the coffee shop murder, the police received information that put Tom near the coffee shop earlier that day. The police ask Tom if he would consent to having his photo taken for a lineup, and since Tom felt he had nothing to hide, he agreed. He even wore his cowboy hat, as requested by the police. The young man that witnessed the suspect leaving the coffee shop the night of the murder was unable to identify Tom from the photo lineup. However, he later saw Tom talking to the police and remarked that he was 90% sure Tom was the suspect from the coffee shop. Tom was then asked by police to participate in a live lineup. Again, feeling he had nothing to hide, Tom consented. This time the young man positively identified Tom as the murderer. Tom Sophonow spent 4 years in prison before he was acquitted for a crime he did not commit (Myers &

Smith, 2015). Tom's story is an example to how previous exposure can lead to errors in an eyewitness line-up, especially when the actual suspect is not present in that line-up. This experiment addresses how the controversial practice of familiar identification from a target-absent line-up can be improved upon using additional information, and judgments made from exposure to one's face.

Most have heard the old saying "don't judge a book by its cover", and yet every day after meeting someone new, we form an opinion about them. After being introduced to someone, we may hear remarks regarding their personality, achievements, and actions. From these conversations people create their own perception of these now new acquaintances. Current research in first impressions suggests that these initial meetings factor into many of our decisions in social situations including: mate selection, jury decision making, and hiring (Gilron & Gutches, 2012; Korva, Porter, O'Connor, Shaw, & ten Brinke, 2012; Langlois et al., 2000; Oosterhof & Todorov, 2008; Porter, ten Brinke, & Gustaw, 2010; Varghese, Hardin, Bauer, & Morgan, 2010). Within the literature in facial recognition it is discussed that previous exposure to a face influences our judgments and initial reactions through the snap judgment process (Günaydin, Zayas, Selcuk, & Hazan, 2012; Rule, Freeman, Moran, Gabriele, Adams, & Ambady, 2010). The initial exposures to the face correctly predicted outcomes of congressional elections in the United States, where judgments of candidates' facial appearance predicted the election success (Todorov, Mandisodza, Goren, & Hall, 2005).

The Dangerous Decision Theory (Porter & ten Brinke, 2009) offers a model outlining the psychological processes involved in arriving at these initial judgments, particularly pertaining to the evaluation of trustworthiness. This theory suggests that an

individual's first impression of a stranger's face produces an instant evaluation of trust that affects judgments of subsequent information relevant to that stranger. That is, when we are meeting someone for the very first time, we instantaneously form a perception of trust.

After we have been exposed to an individual and become "familiar" with them (this sense of familiarity may come from the additional information we have learned about them), it is a fair statement to say that we feel confident that we could recognize this person again if seeing them in the future (Memon, Hope, & Bull, 2003).

Unfortunately, this confidence is tested during eyewitness identification cases where past research suggests that more exposure time to familiar faces leads to misidentification due to overconfidence, particularly in target-absent lineups (i.e., where the perpetrator is not present in the lineup; Kerstholt, Raaijmakers, & Valeton, 1992; Read, Vokey, & Hammersley, 1990).

In the field of eyewitness identification, familiarity leads to many false identifications when the target is absent from the line-up, suggesting that familiar eyewitnesses are potentially hazardous to the identification procedure (Read, 1995). On the other hand, facial recognition research suggests that initial first impressions are accurate when making social decisions. Arguably, these first impressions may not be accurate to the individual per se (ten Brinke & Porter, 2011), but the way that an individual perceives credibility and trustworthiness helps them form concrete decisions, whether these decisions occur in courtrooms, in voting, or in hiring decisions. The purpose of the present study is to determine if first impressions also have an impact on the accuracy of eyewitness identification after a judgment is passed. By introducing first

impressions to eyewitness identification, it will be tested if first impressions regarding familiar eyewitness identifications influence eyewitness accuracy in target-absent line-ups.

Eyewitness research

There is extensive research on eyewitness lineup procedure and identification (Brewer, & Wells, 2006; Dobolyi, & Dodson, 2013; Douglass, Neuschatz, Imrich, & Wilkinson, 2010; Fitzgerald, Price, Oriet, & Charman, 2013; Flowe, Mehta, & Ebbesen, 2011; Horry, Palmer, & Brewer, 2012; Memon, et al., 2003; Molinaro, Arndorfer, & Charman, 2013; Odinot, Wolters, & van Giezen, 2013; Steblay, Trix, Benson, 2013; Zarkadi, Wade, & Stewart, 2009). Although research in eyewitness identification is broad ranging, it is important, in the context of this research, to understand a few core findings. In addition, several relevant procedures will be described.

The use of target-present versus target-absent lineups is common when determining eyewitness accuracy. In this literature, the “target” is the suspect in the crime. In many cases when police officers show an eyewitness a line-up including an apprehended suspect, it is important to address that the suspect may not be the actual criminal, i.e., the person being presented is a suspect, but not the actual perpetrator (Wells & Olson, 2003). Eyewitnesses who can identify an individual from a target-present line-up, i.e., a correct identification, may also mistakenly identify an innocent individual from a target-absent line-up, i.e., a false identification (Wells, 1984). The target-absent line-up has repeatedly caused issues for eyewitnesses where they have not been able to make accurate identifications (Brewer, & Wells, 2006; Horry, et al, 2012; Jackiw, Arbuthnott, Pfeifer, Marcon, & Meissner, 2008; Lindsay, 1986; Lindsay,

Pozzulo, Craig, Lee, & Corber, 1997; Lindsay, Ross, Smith, & Flanigan, 1999; Parker, & Carranza, 1989; Smith, Stinson, & Prosser, 2004; Zajac, & Karageorge, 2009). A study conducted by Zajac, and Henderson (2009) identified how eyewitnesses, who had incorrect information about a perpetrator's eye colour, were twice as likely to identify an innocent person from a target-absent line-up in comparison to people who did not receive the information. This chart was created to elaborate how the target-present lineup and target-absent lineup works (See figure 1). Certain outcomes are expected depending on what type of line-up the eyewitness is presented with. These outcomes are pertinent to the decision the eyewitness makes. In a target-present line-up, an eyewitness who chooses the suspect from the line-up has made a correct identification. This is the best outcome within the target-present line-up because the true perpetrator of the crime was correctly identified. The other option within the target-present line-up is not choosing the suspect, and identifying a foil, or rejecting the line-up. This eyewitness is described as a bad witness, as they are unable to make the correct decision. In a target-present line-up, these two options are not detrimental to an innocent person for two reasons. First, if a correct identification is made, the criminal will go to jail. Second, if they do not choose the suspect, and choose a foil (which is a known innocent) or reject the line-up, no innocent person will be sent to jail, and the eyewitness will be dismissed. However, in a target-absent line-up, if the eyewitness chooses a suspect, they have made a false identification. This is the most dangerous of all possible outcomes, as this may result in innocent individuals being sent to jail because they have been mistakenly identified. The other option in the target-absent line-up is not choosing a suspect; this outcome is called the correct rejection. It is important to clarify that the police do not purposely create a

target-absent line-up. There is a suspect present in this line-up who is found through their investigation, but who may or may not be guilty of the crime. What makes this line-up target-absent is that the person who did in fact commit the crime is not present within this line-up, unknown to police. It is important to focus on the target-absent line-up because these are the innocent individuals affected when a false identification is made. Due to the severity and implications of these mistakes, the current study will address some of the issues within a familiar identification using the target-absent line-up only.

	<i>Chooses a Suspect</i>	<i>Does not Choose the suspect</i>
<i>Target-Present</i>	Correct Identification	Bad Witness
<i>Target-Absent</i>	False Identification	Correct Rejection

Figure 1. Target line-up prediction chart based on choice outcomes.

There are two main line-up procedures used by police where target-present or target-absent lineups can be presented, the simultaneous line-up, and the sequential line-up. The simultaneous line-up is the more traditional line-up procedure, where witnesses look at multiple photographs at the same time, and are asked if the individual they saw is present in the line-up. Although this type of lineup is becoming less common, it is still used in law enforcement, and it is depicted in popular culture as what happens in an eyewitness situation. The sequential line-up procedure, which is now more commonly used in law enforcement, is when photographs are presented to the witness one at a time, requiring them to make an absolute judgment about an individual before they can see another picture (McQuiston-Surrett, Malpass, & Tredoux, 2006). The sequential line-up procedure has been demonstrated to result in fewer false identifications in comparison to a simultaneous line-up (Carlson, Gronlund, & Clark, 2008; Clark, & Davey, 2005; Flowe,

& Bessemer, 2011; Gronlund, Carlson, Dailey, & Goodsell, 2009; Humphries, Holliday, & Flowe, 2012; Palmer, & Brewer, 2012; Steblay, Dysart, & Wells, 2011). But there are still techniques that should be used to ensure the best accuracy in this practice. In a study by Horry, et al. (2012) some participants were given a sequential line-up with six photographs, and some were given a sequential line-up with an unknown number of photographs. This procedure is called backloading (Horry, et al, 2012). In the conditions where participants were given the six photographs, it was found that more misidentifications were happening on the sixth position. The participants in the backloaded conditions made fewer misidentification errors, and did not choose a specific position consistently when making their identification.

When people witness crimes, they first notice the individual's face, and any distinctive elements of that face that may stand out. The distinctive feature issue can make it difficult for police officers to construct fair line-ups such that the individuals who are in the line-ups are not misidentified due to a scar, tattoo or other distinguishing feature. Zarkadi, et al. (2009) asked participants to look at 32 faces. Of these 32 faces, six of them had distinctive markings that would be easily remembered. After they were exposed to the images, they were set up in a task where they were asked to identify which suspects were in the original 32 images they were presented with. In some cases, the six images that originally had distinctive markings, were concealed so the participant had to remember the face and not the marking. Participants were significantly more likely to correctly select the suspect when distinctive features were replicated across foils rather than concealed on the target. These results emphasize how important it is that all people in the line-ups match the witness' description of the criminal, so the identifications are

recalled from memory and not identified because of a marking. The authors replicated their study with a target-absent scenario and found that in the target-absent line-ups, participants incorrectly selected an innocent foil in both concealment and replication conditions. For the purpose of this experiment, the simultaneous line-up is used because error rate is needed, and the sequential line-up is known to have better accuracy.

Familiarity and Overconfidence. A substantial amount of research has been done on the accuracy of eyewitness identification when a suspect is familiar to the eyewitness (Collishaw, & Hole, 2000; Kerstholt, et al, 1992; Read, 1995; Read, et al, 1990). Whereas first impression research explains that brief exposures to unfamiliar faces are sufficient for people to make social judgments (Rule, et al., 2009; Stewart, et al, 2012; Todorov, et al., 2013; Todorov, et al., 2009; Todorov, et al., 2010), eyewitness identification research suggests that exposure to familiar faces can lead to misidentification as a result of overconfidence (Kerstholt, et al., 1992; Read, et al., 1990). Read (1995) examined the effect of increased exposure time on store clerks' ability to accurately recognize and identify a target. Half of the clerks had a short exposure time to the target (30-60 seconds), the other half had a longer exposure time (4-12 minutes). Two days later after the clerks were asked to return to identify the target out of an eyewitness line-up. For both the target-present and target-absent line-ups, the clerks who were exposed longer to the target were twice as likely to misidentify the target. But this effect was amplified in the target-absent line-up.

According to Kerstholt, et al., (1992), this reduced accuracy occurs because eyewitnesses feel more confident they can make an accurate identification, and thus causes them to choose a photograph more often. This is a problem when the target is

absent from the line-up, causing the eyewitness to (incorrectly) choose someone who looks most familiar to them and not the actual criminal.

In many cases, when the eyewitness knows additional information about the suspect, such as information about this person's background, personality, or prior incidents that have happened to this individual, it serves as "priming" which increases the probability of misidentification (Baker, ten Brinke, Porter, 2013; Kerstholt et al, 1992; Read, 1995). Having the additional information about the suspect creates a sense of familiarity to the eyewitness. When the eyewitness is expecting a familiar person to be presented in a line-up there is a 44% increase in false-positives (Kerstholt et al, 1992) because the expectation causes the eyewitness to identify strangers as being familiar (Young, Hay, & Ellis, 1985). Gobbini and Haxby (2007) explain how the recognition of the familiar face involves not only visual familiarity, but also emotional responses that are stored in long-term memory. According to Kerstholt et al. (1992), a successful identification of a familiar face occurs when there is additional, and specific, information remembered about the individual that is being recognized. This phenomenon sounds a lot like the Mere-exposure effect. The Mere-exposure effect is described as an implicit positive affective reaction to a repeated or "familiar" stimuli (in this case a face) (Ye & van Raaij, 1997).

There are scenarios where eyewitnesses must make repeated identifications from different line-ups, whether this is from a mugshots, or from an identifications in court. Being double exposed to an individual could have an impact on accuracy and confidence of identification the eyewitness is making. When eyewitnesses view a suspect for the first time in a line-up they are using their recognition from their episodic memory. When they

are looking at the suspect for a second time, or being “double exposed”, they may be remembering the suspect from the photographed line-up and not the actual crime. In a study conducted by Steblay et al. (2013), witnesses were asked to view a video of a crime and were then asked to identify the suspect from the first line-up, and then were asked to complete this task again two weeks later. They found that identification errors that were made in the first round were continued into the second round. Despite evidence suggesting these procedures are not working, and are considered reckless, these forms of repeated identification tasks are still used in practice (Behrman, & Davey, 2001; Steblay, 2011).

This familiarity should not be confused with unconscious transference.

Unconscious transference is a misidentification of an innocent person who is familiar to the eyewitness from a different context (Davis, Loftus, Vanous, & Cucciare, 2008; Read, Tollestrup, Hammersley, McFadzen, & Christensen, 1990; Ross, Ceci, Dunning, Toglia, 1994). When the authors are discussing familiarity in the context of unconscious transference, they are referring to previously seeing an individual’s face. This is also known as the familiarity effect (Deffenbacher, Bornstein, & Penrod, 2006). Davis et al (2008) explained how there was two primary types of unconscious transference, the first describing misidentifications happening when eyewitnesses were recalling faces from mug shots, and not the actual crime (Deffenbacher, et al, 2006; Dysart, Lindsay, Hammond, & Dupuis, 2001). The second describing the misidentification happening with someone who was present at the crime, but was not the assailant. It should be noted that unconscious transference, though important, will not be established in the following study. Before continuing, there is value in focusing on facial perceptions and how brief

exposure to a face may influence decisions made in certain social situations. In the context of a familiar eyewitness identification when meeting the suspect before the crime takes place, past research would suggest the moment the individual was exposed to their face, a judgment was made.

First impressions in faces

Facial recognition research suggests first impressions are a powerful predictor in a variety of social situations. As mentioned above, these social situations can range from hiring and jury decisions to mate selection and building social in-groups at school (Gilron & Gutches, 2012; Korva, et al., 2012; Krendl, Magoon, Hull, & Heatherton, 2011; Langlois, et al., 2000; Oosterhof & Todorov, 2008; Porter, et al., 2010; Todorov, et al., 2005). Brief exposures to unfamiliar faces are sufficient for people to make social judgments related to trustworthiness and aggressiveness (Rule, Ambady, & Adams, 2009; Stewart, et al, 2012; Todorov, Mende-Siedlecki, & Dotsch, 2013; Todorov, Pakrashi, & Oosterhof, 2009; Todorov, Loehr, & Oosterhof, 2010) and these evaluations successfully predict outcomes in elections (Mattes, Spezio, Kim, Todorov, Adolphs, & Alvarez, 2010; Todorov, et al., 2005), and the success of corporate executives (Rule & Ambady, 2008).

Competence emerges as one of the most important trait attributes when making evaluations about politicians (Todorov, et al. 2005). The candidates who were perceived as more competent won their riding 71.6% of the time in the United States Senate and 66.8% of the time in the US House of Representatives races in the congressional elections of 2000, 2002, and 2004. Interestingly, inferences of competence not only predicted the winners but differences between judgments of competing candidates were also positively correlated to the margins of victory between candidates. A similar study

by Rule, and Ambady (2008), selected the 25 highest and 25 lowest ranked companies from the 2006 Fortune 500 Website. This website shows all the statistics in regards to income and success of the Chief Executive Officer's Company. The researchers took the Chief Executive Officer's pictures and had participants rate them for trustworthiness, competence, likability, leadership, and dominance. It was found after controlling for age, attractiveness, and emotion, that positive perceptions from the participants predicted the Chief Executive Officer's success. These first impression evaluations of facial appearance appear to be subconscious judgments stemming from the structural characteristics of the face (Todorov, 2008). Specifically, these judgments are implicit, meaning that the individual making the judgment is unaware as to why they are making the decision, but rather that it just "is" (Greenwald & Banaji, 1995).

Dangerous Decision Theory. As mentioned previously, Dangerous Decision Theory (Porter and ten Brinke, 2009) offers a testable model outlining the processes involved in arriving at an evaluation of trust. Their theory suggests a first impression of a stranger's face is made the instant they make visual contact with them. Porter, et al (2010) tested their model using two vignettes that described either major or minor crimes with a photograph of a defendant who was rated as either trustworthy or untrustworthy. Participants evaluated culpability after viewing all the evidence that was presented in the case (see Figure 2). They found that participants needed less evidence to arrive at a guilty verdict, and were more confident about this decision when the defendant was perceived as having an untrustworthy face. It was also found that untrustworthy defendants were considered to be more guilty based on "ambiguous" evidence, where defendants perceived as being more trustworthy needed more incriminating evidence for a

conviction (Porter, et al. 2010).

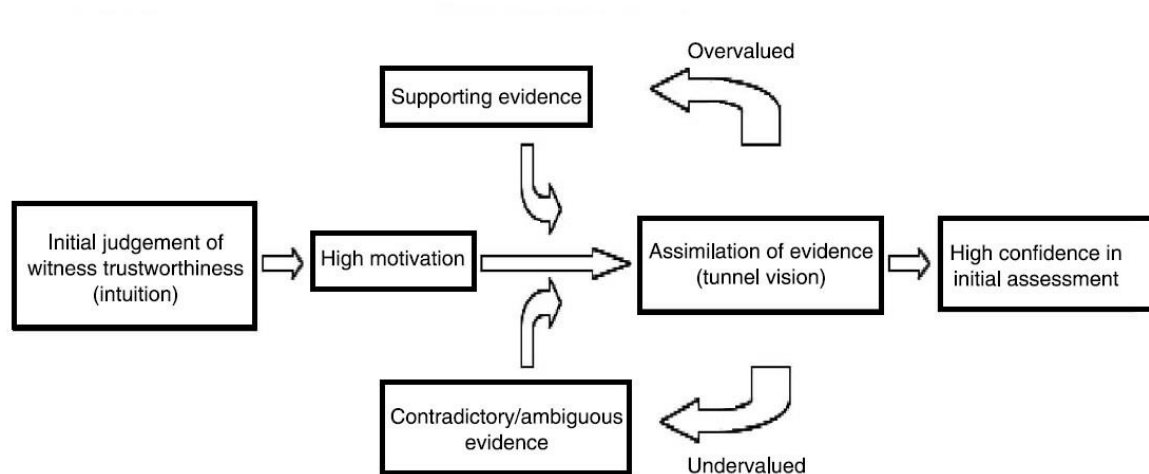


Figure 2. Porter & ten Brinke (2009) Dangerous Decision Theory Model.

In a continuation of this work, Korva, et al. (2012) wanted to examine the role of specific individual differences on decisions made. Their previous experiment (Porter, et al, 2010) used two vignettes that described either major or minor crimes. Participants evaluated culpability after viewing all evidence presented. These images were also evaluated for trustworthiness, attractiveness, likability, criminality, and whether or not they have a “baby face”. From these ratings, the highest and lowest rated individuals were used for the final study. In the second study, two questionnaires were used to assess participant’s attitudes and biases toward the legal system, The Pretrial Juror Attitude Questionnaire¹, and the Justice-Vengeance Scale². Participants endorsing justice–fairness³ were more likely to exonerate an untrustworthy looking defendant, but less

¹ Identifies individual differences in legal attitudes that assess how trial information is processed in legal decision-making

² Assesses two predominant motives (justice and vengeance) that may be aroused by the legal system.

³ Which is the opposite of Justice-Vengeance

likely to exonerate a trustworthy looking one. Individuals who held a strong racial bias⁴, by contrast, were less likely to be influenced by exonerating evidence, specifically for untrustworthy looking defendants. This study also supports the Dangerous Decision Theory, but broadens it by showing that faces varying in trustworthiness are still activating bias behaviour from the participant.

Continuing to test the model, Baker et al. (2013) suggested any information given about a stranger will elaborate the first impression originally made. Their study suggests there is a bi-directional relationship between decision-making and the first impression. The authors examined if information concerning moral actions would influence the observers' recall in facial trustworthiness, such that a target who has engaged in criminal actions will be recalled as appearing less trustworthy than they had initially appeared to the observer. Participants were given an initial "neutral" face, and then were asked to read a vignette about the target's actions (randomly assigned conditions of either immoral, morally neutral, or altruistic behaviour). Participants were asked to make a judgment on whether or not they should be punished, rewarded, or have no repercussions for the target's actions. After a 30-minute delay, participants were asked to recall the face they were presented with earlier in the study. During this phase of the study, they were presented with a constantly changing image of the individual's face, and asked to pinpoint when the image replicated the person they saw earlier in the study. It was found that observers presented with the immoral vignette mistakenly recognized a less trustworthy version of the target than the actual face they had viewed in the beginning of the study. On the other hand, this effect did not happen with the altruistic vignette, which

⁴ Which is measured within the Juror- Attitudes questionnaire.

suggests this decision may be uniquely related to the negative information about the target. This study suggests there is a potentially biasing effect on an individual's knowledge of another person after they learn information about their past that is considered "immoral".

When people must make a decision about an individual based on small amounts of information, implicit decisions become a factor in these judgments. van't Wout, and Sanfey (2008) asked participants to play a "trust game" where they made decisions regarding a partner's face, and then identified an amount of money they trusted their partner to return to them. For an understanding of how the decisions were made about the individuals, it is necessary to explain how the game is played.

In a standard Trust Game two anonymous persons, an investor and partner, interact with one another. The investor is given a certain amount of money and informed that they have the opportunity to transfer some amount of this money to their partner. They can transfer no money, the entire amount of money, or any amount in between. The money transferred by the investor is then multiplied by the experimenter (usually by a factor of 3 or 4) and given to the partner. The partner, with whom the investor is not allowed to communicate during the game, then has the opportunity to transfer back some of the multiplied amount to the investor. In essence, the partner has a choice between honouring and abusing trust. If the partner honours trust and returns more money than transferred by the investor, both players end up with a higher monetary payoff than was originally obtained. However, if the partner abuses trust, the investor ends up with less money than the initial endowment, whereas the partner ends up with a large profit (van't

Wout & Sanfey, 2008). The decisions made by the investor and their partner are based on the photograph of the partner. Each participant was asked to play this game with 79 faces, which had previous ratings of trust from a pilot study, to see if their implicit decisions to trust an individual were similar to the previous ratings of trustworthiness from a separate sample. After participants decided whether or not they trusted their partners, they were presented facial recognition task. Participants were presented with 150 different faces; 79 of them were from their “trust game”. Faces presented in the “trust game” were given higher recognition ratings than faces that were new to the participant. It was also found that recognition was better for faces that were rated as trustworthy by participants as compared to faces that were rated as being untrustworthy.

Trust. The evaluation of trust is a reoccurring theme in first impression research. There are specific facial structures that are involved in the identification of trustworthiness in a face; higher eyebrows, more pronounced cheekbones, shallow nose sellion, and wider chins, are specific signals of trustworthiness (Bar, Neta, & Linz., 2006; Stewart et al., 2012; Todorov, 2008; Todorov, Baron, & Oosterhof, 2008; Vartanian et al., 2012; Willis & Todorov, 2006). Flowe (2012) argues that trust and dominance is spontaneously evaluated from facial features. Participants were asked to rate the emotional state, personality traits, and criminal appearance of faces shown in photographs. Both male and female faces rated high in criminal appearance were perceived as less trustworthy and more dominant. It should be noted that this is based on the “perception” of the evaluators, and not the actual innocence or guilt of the individuals in the photographs. This does not mean that there is a correlation between criminality and

trustworthiness, but rather people's perception of trustworthiness is related to whether or not they think the person is a criminal.

Suzuki and Suga (2010) investigated whether our mind copes with remembering trustworthy-looking cheaters compared to remembering untrustworthy-looking cheaters. We are more likely to trust and cooperate with the former, resulting in a higher risk of unreciprocated cooperation by enhancing memory for trustworthy-looking cheaters. Participants played a debt game, where they learned to discriminate among good, neutral, and bad lenders, who respectively charged no, moderate, and high interest on the debt. Each lender had either a trustworthy- or untrustworthy-looking face. In the end, the researchers found that bad traits associated with trustworthy-looking faces were better remembered than those associated with untrustworthy looking faces. This effect has an adaptive significance that protects us from exploitation by trustworthy-looking cheaters in social exchange. This study shows that just because you are perceived as being trustworthy, it does not mean that you will not deceive your partner. The researchers found that the more trustworthy you look, the more likely you are to be remembered. If you are trustworthy "looking" but also a cheater, you are more likely to be recognized in comparison to someone who is not perceived as being trustworthy. This finding is interesting as it is similar to van't Wout, and Sanfey (2008), where participants recognized the trustworthy face better than the untrustworthy face.

Attractiveness. When discussing first impressions and making judgments about others based on interactions in social situations, perceptions of attractiveness is an important concept to consider. Facial attractiveness is considered holistically, which often acts as an assessment for romance and health (Eagly, Ashmore, Makhijani, & Longo,

1991; Jones, Little, Penton-Voak, Tiddeman, Burt, & Perrett, 2001; Pegors, Mattar, Bryan, & Epstein, 2015; Perrett, Burt, Penton-Voak, Lee, Rowland, & Edwards, 1999). A substantial amount of literature has focused on how attractiveness influences all judgments, and may even lead individuals to make drastic decisions about people based on their perception of attractiveness (Little, Jones, & DeBruine, 2014; Maeder, Yamamoto, & Saliba, 2015; Nisbett & Wilson, 1977; Rennels & Kayl, 2015; Stockemer & Praino, 2015). Based on these findings, many facial researchers control for attractiveness, allowing them to look at other variables, or how other factors can counter these decisions (Ambady & Rosenthal, 1993; Rule & Ambady, 2008; Todorov et al, 2005; Willis & Todorov, 2006).

There has been debate surrounding whether attractiveness pulls judgments of trust, or if they are dichotomous in their measures. In an experiment by Braun, Peus, and Frey (2012) they discussed how attractiveness affects female leaders; specifically related to how women who are attractive are less likely to be elected as a leader. They tested how leader gender, leader attractiveness, and leadership style influenced followers' trust and loyalty. Results showed that attractiveness did not influence trustworthiness or loyalty for both male and female leaders with the specific transactional leadership style. In specific social situations it can be said that attractiveness and trustworthiness are not measured the same way. This was also found in laboratory experiments where people perceived unknown guilty individuals as being more attractive and less trustworthy based on facial appearance alone (Carter-Rogers, Jakeman, Floyd, & Smith, 2013; Carter-Rogers, Smith, Floyd, & Chafe, 2015). This has also been found to vary within gender (Chafe, Carter-Rogers, Pye-Strowbridge, Smith, & Habib, under review). In this experiment,

attractiveness is measured as a way to determine if attractiveness judgments influence accuracy from an eyewitness perspective.

The Present Research

There are implications to someone being familiar. The initial impression they leave is arguably the impression that one will have of them permanently. Additional exposure can result in change, but this first impression is the basis for all future change. Baker, et al. (2013) suggest there is a potentially biased effect on an individual's knowledge of another person after they learn "immoral" information about their past. That is, having forming a first impression about someone, and then hearing additional information about them may sway this initial first impression. The objective of this study is to investigate whether first impressions influence decisions when the target is familiar to the eyewitness. For this experiment three factors were distinguished as "familiarity": the exposure to the face, receiving additional information, and making judgments about the suspect based on the other two factors.

I expect that received information about an individual, will impact accuracy in target absent lineups. Specifically:

H1a: Participants who are familiar with the target will have better accuracy in target-absent line-ups when receiving positive information.

H1b: Individuals receiving negative information will be less accurate in target-absent line-ups.

H2: There will be a main effect on confidence and accuracy; such that confidence will lower post identification when having misidentified the target.

H3: Individuals in familiar conditions who identify incorrectly will decrease in confidence in comparison to participants who did identify correctly in the familiar and unfamiliar conditions.

H4: There will be a main effect on confidence, and information where participants in negative conditions will decrease in post confidence, and positive conditions will increase.

Method

Participants

The sample population⁵ ($N = 171$) was recruited from Saint Mary's University, using the SONA Psychology bonus system, and bonus points in an Anthropology class on campus (ANTH 2282). A number of demographic questions (Appendix A) were asked to gather a profile of the current participant pool. Participants predominately identified as Caucasian (64.1%) female (70%), between the ages of 17-47 years old ($M = 21.44$, $SD = 4.21$). 32.7% of the participants reported they were currently working, leaving the other 67.3% reporting they were full-time students who were currently unemployed. Participants were asked to recall their parent's approximate combined household income while they were growing up. 26.2% of the participants fell into the low income bracket (\$35,000 or lower)⁶, 33.4% fell into the medium income bracket (\$35,001 to \$99,999)⁷,

⁵ SES, ethnicity, country, age, gender, and working status were collected but are not analyzed for the purpose of this thesis. No specific predictions were made in regard to these factors.

⁶ It should be noted that 14.9% of the low income sample were considered living in poverty (Lower than \$20,000 per year).

leaving the remaining participants in the high income bracket with 40.5% (\$100,000 or higher). Participants were also asked to self-report what socioeconomic status they considered themselves to be from. 10.6% felt they were from the low income bracket, 81.2% felt they were from the middle income bracket, and 8.2% felt they were from the high income bracket (Hodges, & Brown, 2013; MacLeans, 2015).

Research Design

Independent Variables. Familiarity (exposure to targets face). In the familiar condition, they were exposed the targets face. In the unfamiliar condition they did not see the targets face. First impression information, which is 1 of 3 categories of information given to the participant (positive, neutral, negative).

Outcome Variables. Accuracy is determined based on whether or not the individual decides to choose an individual from the simultaneous line-up. Non-choosers are considered to be accurate. This creates a dichotomous variable of correct, and incorrect. Judgments of trustworthiness, competence, and attractiveness are taken as predictors of positive or negative first impressions. Target, for manipulation check purposes, two different targets were used. Confidence is measured as time, a before and after measure of confidence to see change throughout the experiment. Pre-confidence which is measured after giving their evaluation of trustworthiness, competence, and attractiveness. Post-confidence measured after they are exposed to the line-up. For the repeated measure ANOVA, the measurement of “time” will be considered as the within-subjects variable.

⁷ It should be noted that medium income ranges due to described levels of low-medium, and high-medium income.

We used a 2 (Face: familiar, unfamiliar) X 3 (First impression information: positive, neutral, negative) X 2 (Target: Target 1 and Target 2) design. There were two confederates used as the target to ensure there was no effect due to the specific target. Participants were then randomly assigned to one of twelve different conditions. Participants in “familiar” conditions were given the same amount of exposure time to the target, and were asked the same questions about the scenario they were shown. Participants who were in the “unfamiliar” condition were not exposed to the individual’s face, but were given the same impression information about the target. Specifically, participants were asked to rate their target on attractiveness, trustworthiness, and competence, and then after a filler task asked to identify their target from a simultaneous line-up.

Procedure

The experiment was built on the Qualtric online survey tool, and participants are asked to come into the lab and complete the experiment using a computer in a laboratory setting. This was done to ensure participants were exposed to the same controlled environment. Participants are told that the experiment is about different interactions with strangers, and how those certain interactions influence judgments and first impressions. They were also told that they will be watching a short video, and that their full attention is required.

The script describes a scenario where the participant is at a diner with a friend, when an individual (Target) approaches them. This target is well known to the friend. They are exposed to this target while the friend catches up with them briefly in the familiar conditions. At this time in the study, the targets photograph was on the screen

(conditions 1-3⁸). When the conversation ends the friend proceeds to tell the participant additional information (first impression information) about the target they just met (either positive, neutral, or negative information depending on the condition). In the conditions where the participants will not be exposed to the face, they will only receive the first impression information (conditions 4-6). Participants are presented with a filler task to simulate time passing in the diner. Appropriately, the participants were given a menu, and told that they must choose three items from the menu, ensuring that they do not break their budget of twenty dollars after taxes are included. After placing their order, and ensuring they stayed within the budget, the rest of the script continues. Participants are then notified that they are leaving the diner, and at this point in the experiment participants see an ambiguous video which the target is present in. In all conditions, participants were prompted by their “friend” that the individual they see running is the individual they either were exposed to earlier (1-3) or who the friend was referring to (4-6). Following this scene, participants were asked to describe the individual in the video, and make a judgment about this target measuring for attractiveness, competence, and trustworthiness. After making their judgments of this target, participants were asked to describe the video. At this point in the experiment, participants were asked to record how confident they were that they could identify this individual from an eyewitness line-up. After taking a pre-confidence rating, participants were shown a simultaneous target-absent line-up. After seeing the eyewitness line-up, and making a decision, they were asked how confident they are that they made the right decision. It is understood that the sequential line-up produces less error when eyewitnesses are identifying suspects. For the

⁸ Conditions were labeled 1-6, a and b, based on their target. 1-6a were the first target, and 1-6b were the second target.

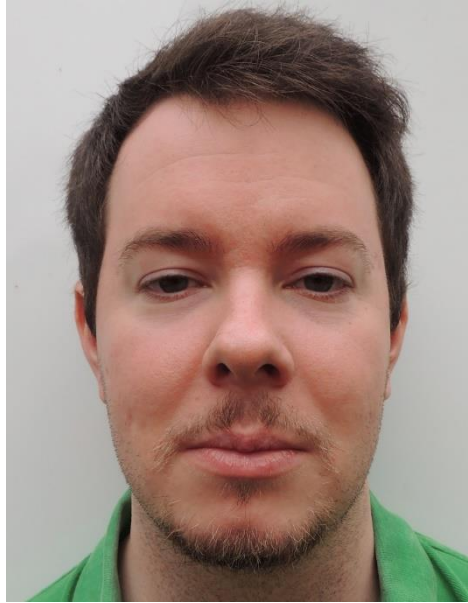
purpose of this study, we used the simultaneous line-up to create a higher error rate in order to help identify any differences between conditions.

Materials

Script. This is the narrative throughout the experiment. It tells a story in regards to the encounter with the target, as well as the interview the participant has with a figurative police officer (Appendix B)

Facial Stimuli. The Social Attitudes Psychology Laboratory at Saint Mary's University has a collection of faces dated from 1990 to 2015. These images have been piloted and measured for attractiveness, competence, trustworthiness, and criminality. Two volunteered confederates were used as the base line for target 1 and target 2 (see figure 3). Research assistants from the lab were part of a focus group to assign foils from the facial collection for the line-up. Images were voted on based on facial appearance.

Target 1



Target 2



Figure 3. Facial stimuli used for target 1 and target 2.

Depending on the condition participants are randomly assigned to, they received facial stimuli as their familiar or unfamiliar target. To ensure there is no individual person effect, two separate stimuli were randomly assigned for judgments.

Other facial stimuli used in this experiment were shown to the participant during the simultaneous line-up procedure.

First impression Information. Depending on the condition participants were assigned to, they received a vignette with additional information about the target (e.g., negative, neutral⁹, or positive information). An example of the negative information is: “That was John. I went to high school with him. He basically failed every class he was ever in. As you can see, he did not amount to much. I am not sure what he does for a living, but I know that when we were in high school he used to sell drugs instead of getting a real job like the rest of us.” An example of the positive information is: “That was John. I went to high school with him. He was a straight A student. As you can see, he is pretty successful. I am pretty sure he went to school for dentistry, but I know that when we were in high school he used to be on the yearbook committee. He was involved in the community center.”

Ambiguous Video. Participants were presented with an ambiguous video. In this video, the target was running towards them down the street, suddenly turning their head to look behind them.

Judgment Measures. Participants were asked to give their perceptions of competence (Todorov et al., 2005), trustworthiness (Flowe, 2012), and attractiveness

⁹ No information was given in this condition making it a control condition.

(Rule & Ambady, 2008), of the facial stimuli they received using a Likert-type scale ranging from very unlikely to be said trait (1) to very likely to be said trait (7) (Appendix E)

Confidence Measures. Participants were asked to give a rating to their perceived accuracy in the identification of the target, asking how confident they were. After they made a decision about the identification line-up, they were given a post-confidence measure. Using a Likert-type scale participants were asked “How confident are you that you can make an accurate identification?” After seeing the lineup and making a decision they were asked; “How confident are you that you made the right decision”? (Appendix F)

Results

Manipulation checks

Foil frequency in the target-absent line-up. Descriptive statistics were run on the frequency of the choices on the target-absent line-up; 61.4% of the participants made correct rejections. 12.9% of participants chose the foil in place one. 1.8% of participants chose the foil in place two. 14% of participants chose the foil in place three. 1.8% of participants chose the foils in place four. 5.3% of participants chose the foil in place five. Finally, 2.9% of participants chose the foil in place six (see figure 4).



Figure 4. Target-Absent Line-up

A One-way ANOVA was conducted to compare the judgments of the target in familiar and unfamiliar groups. To ensure that the manipulations were working, we wanted there to be no significant difference in the judgments of trustworthiness, competence, and attractiveness in the two types of groups.

Judgment manipulation check overall and for targets. When looking at perceptions of trust in familiar ($M = 3.57$, $SD = 1.06$), and unfamiliar ($M = 3.72$, $SD = 1.20$) groups, there was no significant difference; $F(1,169) = .831$, $p = .363$. We also found no significant difference in perceptions of competence in familiar ($M = 4.11$, $SD = 1.19$), and unfamiliar ($M = 4.01$, $SD = 1.08$), groups; $F(1,169) = .352$, $p = .554$. Finally, we found no significant difference in perceptions of attractiveness in familiar ($M = 3.22$, $SD = 1.30$), and unfamiliar ($M = 3.43$, $SD = 1.42$) groups; $F(1,169) = 1.103$, $p = .295$ (see Table 1).

Table 1

Comparing familiar and unfamiliar groups to ensure similar judgments within conditions on same images.

	Familiar		Unfamiliar		df	F
	M	SD	M	SD		
Judgments						
Trustworthiness	3.57	1.06	3.73	1.20	169	.831
Competence	4.11	1.19	4.01	1.08	169	.352
Attractiveness	3.22	1.30	3.43	1.42	169	1.103

Note. Manipulation check

This manipulation was also split between each target to ensure that we were not having an individual effect. For Target 1, when looking at perceptions of trust in familiar ($M = 3.76$, $SD = 1.13$), and unfamiliar ($M = 4.06$, $SD = 1.17$) conditions, there was no significant difference; $F(1,85) = 1.383$, $p = .243$. We also found no significant difference in perceptions of competence in familiar ($M = 4.23$, $SD = 1.22$), and unfamiliar ($M = 4.23$, $SD = 0.99$), conditions; $F(1,85) = .000$, $p = .995$. Finally, we found no significant difference in perceptions of attractiveness in familiar ($M = 3.54$, $SD = 1.19$), and unfamiliar ($M = 3.90$, $SD = 1.32$) groups; $F(1,85) = 1.715$, $p = .194$. For Target 2, when looking at perceptions of trust in familiar ($M = 3.38$, $SD = 0.95$), and unfamiliar ($M = 3.36$, $SD = 1.12$) groups, there was no significant difference; $F(1,82) = .002$, $p = .960$. We also found no significant difference in perceptions of competence in familiar ($M = 4.00$, $SD = 1.15$), and unfamiliar ($M = 3.77$, $SD = 1.14$), groups; $F(1,82) = .824$, $p = .367$. Finally, we found no significant difference in perceptions of attractiveness in familiar ($M = 2.90$, $SD = 1.34$), and unfamiliar ($M = 2.93$, $SD = 1.35$) groups; $F(1,82) = .012$, $p = .914$ (see Table 2).

Table 2

Comparing familiar and unfamiliar conditions with Target 1 and Target 2 to ensure that each target is perceived the same way in both conditions.

		Familiar		Unfamiliar		df	F
		M	SD	M	SD		
<u>Target 1</u>	Trustworthiness	3.77	1.13	4.06	1.17	1,85	1.383
	Competence	4.23	1.22	4.23	0.99	1,85	.000
	Attractiveness	3.54	1.19	3.90	1.32	1,85	1.715
<u>Target 2</u>	Trustworthiness	3.38	0.95	3.36	1.12	1,82	.002
	Competence	4.00	1.15	3.77	1.14	1,82	.824
	Attractiveness	2.90	1.34	2.93	1.35	1,82	.012

Note. Manipulation check

Individual effect. We conducted a one-way between subjects ANOVA comparing each target to each other based on perceptions of trust, competence and attractiveness. There was a significant effect for trustworthiness [$F(1,169) = 11.12, p = .001$], where Target 1 ($M = 3.93, SD = 1.15$) was perceived as more trustworthy in comparison to Target 2 ($M = 3.37, SD = 1.04$). There was a significant effect for competence [$F(1,169) = 4.14, p = .043$], where Target 1 ($M = 4.23, SD = 1.09$) was perceived as more competent in comparison to Target 2 ($M = 3.88, SD = 1.14$). There was also a significant effect for attractiveness [$F(1,169) = 28.66, p < .001$], where Target 1 ($M = 3.74, SD = 1.27$) was perceived as more attractive in comparison to Target 2 ($M = 2.92, SD = 1.34$). Based on this statistical analysis, Target 1 was perceived more positively than Target 2 (see Table 3).

Table 3

Comparing Target 1 and Target 2 to see if there is an individual effect.

	Target 1		Target 2		df	F
	M	SD	M	SD		
Judgments						
Trustworthiness	3.93	1.16	3.37	1.04	1, 169	11.12**
Competence	4.23	1.10	3.88	1.14	1, 169	4.14*
Attractiveness	3.74	1.27	2.92	1.34	1, 169	16.86***

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. This manipulation checked for an individual effect, further analysis found no individual effect is present.

To ensure that this phenomenon did not impact the overall results, a chi-square was performed to see if there was a difference in accuracy depending on which target the participants received. It was found that there was no significant difference in accuracy based on which target the participants was presented with ($\chi^2 = 0.119, p = .655, df = 1$).

Judgments reflecting first impression information. Following this check, it was essential to establish the effectiveness of manipulations of first impression. This would be demonstrated by participants perceiving individuals as either more trustworthy, and/or more competent in the positive conditions, and less trustworthy, and/or less competent in the negative conditions. Due to literature discussing the halo effect (Nisbett & Wilson, 1977), where attractive people can do no wrong, we want to ensure there is no significant difference between the three conditions when assessing attractiveness.

A one-way between subjects ANOVA was conducted to compare the perceived judgments (trust, competence, and attractiveness) in the first impression information in positive, neutral, and negative conditions (see Table 4). There was a significant effect for trustworthiness in first impression information for the three conditions [$F(2,168) = 4.57, p = .012$]. Post hoc comparison using Tukey HSD test indicated that the mean score for the negative condition ($M = 3.32, SD = 1.19$) was significantly different from the neutral

condition ($M = 3.96$, $SD = 0.99$). That is, participants in the negative condition perceived the individual as being less trustworthy in comparison to the participants in the neutral condition. There was no significant difference between the positive condition ($M = 3.66$, $SD = 1.14$) and negative condition ($M = 3.32$, $SD = 1.19$) when looking at trustworthiness. However, the means are in the right direction. There was also a significant effect for competence in first impression information for the three conditions [$F(2,168) = 6.01$, $p = .003$]. Post hoc comparison using Tukey HSD test indicates that the mean score for the negative condition ($M = 3.66$, $SD = 1.22$) was significantly different from the positive condition ($M = 4.37$, $SD = 1.04$). That is, participants in the negative condition perceived individuals as being less competent in comparison to the participants in the positive condition. There was no significant effect for attractiveness in first impression information for the three conditions [$F(2,168) = .70$, $p = .498$].

Table 4
Determining perceived judgments for conditions.

Condition	Judgments		
	Trustworthiness	Competence	Attractiveness
Negative	3.32 ^a	3.66 ^b	3.15
Neutral	3.96 ^a	4.09	3.39
Positive	3.66	4.37 ^b	3.44

^a Comparing judgments of participants findings show trustworthiness is perceived more negative in the negative condition [$F(2,168) = 4.57$, $p = .012$].

^b Comparing judgments of participants findings show competence is perceived more positive in positive condition and more negatively in negative condition [$F(2,168) = 6.01$, $p = .003$].

A correlation was conducted to assess the relationships between judgments of trustworthiness, competence, and attractiveness. A correlation between all three variables was found. Essentially, this means that ratings of trustworthiness, competence, and attractiveness significantly impacted each other (see Table 5). This is expected especially

within the first impression literature, where individuals are normally perceived positively, or negatively universally (Rule & Ambady, 2008; Todorov, 2008; Todorov, et al, 2005).

Table 5

Correlations for judgments of trustworthiness, competence, and attractiveness
($N = 171$)

Variables	1	2	3
1. Trustworthiness	-		
2. Competence	.635**	-	
3. Attractiveness	.421**	.361**	-

Note. ** $p = .01$ two-tailed

Main Analysis

Logistic Regression. A logistic regression analysis was conducted to predict which type of first impression information had the greatest accuracy rate. The dependent variable accuracy was put into the model, and was separated by response; correct rejection ($n = 105$), and false identifications ($n = 66$). With no predictors in the model, and looking at the participants who identified correctly, 61.4% of the participants were predicted to make a correct rejection. The constant model was significant ($p = .003$). This explains that there is a significantly different base rate. A test of the model when adding the predictors familiarity, and first impression type against the constant model with no predictors (omnibus table), was not statistically significant, ($\chi^2 = 2.280$, $p = .320$, $df = 2$). This can be explained by the significant base rate discussed in the constant model. The logistic regression base rate is very sensitive to the uneven dependent variable. It is important to assess this finding closer using a chi-square.

With the predictors entered into the model, the hit rate improves to 62.6%.

Familiarity was significant ($p = .037$), showing that in familiar conditions there was a

3.12 times increase in odds that an individual will be accurate in a target-absent line-up (see Table 5). First impression information was not significant ($p = .577$), seeming to show no support for H1a and b. An information by familiarity interaction was put into the model, showing no significance ($p = .321$) (see Table 6).

Table 6

Logistic regression analysis to predicting the most accurate first impression manipulation in target absent lineups influenced by familiarity

	Variable	B	Wald	df	p-value	Exp(B)
1.	Familiarity	1.137	4.366	1	*.037	3.117
2.	First impression Information		1.100	2	.577	
	Negative	.451	.787	1	.375	1.569
	Neutral	.473	.838	1	.360	1.606
3.	Familiarity X First Impression Information		2.271	2	.321	
	Negative	-.238	.083	1	.774	.788
	Neutral	-1.110	2.084	1	.149	.329

Note. First impression information is a categorical variable being compared to the positive information condition. * $p < .05$

Chi-Square. An accuracy hit rate was conducted using the accuracy percentages within the familiar and unfamiliar conditions based on the first impression information (see Table 7). There was a significant difference when comparing positive and negative information within the familiar (77%) and unfamiliar conditions (47%) ($\chi^2 = 4.99$, $df = 1$, $p = .025$). That is, participants who were exposed to positive information in the familiar conditions, have more identification accuracy in comparison to participants who were exposed to negative information in the unfamiliar conditions. There is also a significant

difference within the positive conditions between familiar (73%) and unfamiliar conditions (47%) ($\chi^2 = 4.50$ $df = 1$, $p = .034$). That is, participants who were exposed to positive information in the familiar conditions, have more identification accuracy in comparison to participants who were exposed to positive information in the unfamiliar conditions. When looking within the negative condition, there was no significant difference between the familiar (77%) and unfamiliar condition (58%). But as you can see from these percentages, there was a trending effect happening between these conditions, in the similar direction to the positive information conditions. Participants in familiar conditions are more accurate when manipulating first impression information, specifically in the positive conditions. It should be noted that in the neutral condition, there is no significant difference, and no variance between the familiar (59%) and unfamiliar condition (59%) ($\chi^2 = .002$ $df = 1$, $p = .961$). An independent sample t-test was run to assess the difference within the familiar condition. When looking within the familiar condition, there was no significant difference between the negative information ($M = .77$, $SD = .43$), and the neutral information ($M = .59$, $SD = .50$), $t(46.86) = 1.36$, $p = .182$ ¹⁰. There was also no significant difference between the positive information ($M = .73$, $SD = .45$), condition, and the negative information condition ($M = .77$, $SD = .43$), $t(50) = .318$, $p = .752$.

¹⁰ The Levene's test for equality of variance was used for this statistic.

Table 7
Eyewitness accuracy in target absent lineups across familiar and unfamiliar groups

First Impression Information	Conditions				
	N	Familiar	N	Unfamiliar	Total N
Negative	22	77% ^a	31	58%	53
Neutral	27	59%	29	59%	56
Positive	30	73% ^b	32	47% ^{ab}	62

^a Comparing positive to negative information, there is a significant difference between familiar and unfamiliar groups ($\chi^2 = 4.99$, $df = 1$, $p = .025$)

^b Comparing within positive information conditions, there is a significant between familiar and unfamiliar groups ($\chi^2 = 4.50$ $df = 1$, $p = .034$)

Repeated Measures Analysis of Variance. A correlation was conducted to assess the relationship between accuracy and pre and post confidence ratings. It was found that there was a relationship between all the variables, but that the accuracy, and post-confidence ratings was a stronger relationship (see Table 8).

Table 8
 Correlations for accuracy, pre-confidence, and post-confidence
 ($N = 171$)

Variables	1	2	3
1. Accuracy	-		
2. Pre-Confidence	.169*	-	
3. Post-Confidence	.317**	.448**	-

Note. * $p = .05$, ** $p = .01$ two-tailed

A repeated measures ANOVA was conducted to compare pre and post confidence, in positive, neutral, and negative first impression information conditions (see Table 9). There was a significant effect, Wilks' Lambda = .861, $F(1,159) = 25.57$, $p < .001$; such that participants were less confident in their response on the post confidence

measure ($M = 4.04$, $SD = 1.72$), in comparison to their pre confidence ($M = 4.56$, $SD = 1.48$), $t(170) = 4.022$, $p < .001$. Thus, there was a decrease in confidence after making an identification. A significant confidence by accuracy main effect, Wilks' Lambda = .946, $F(1,159) = 9.11$, $p = .003$) was also found; such that where participants who did not choose accurately (pre-confidence; $M = 4.24$, $SD = 1.39$) had decreased confidence (post-confidence; $M = 3.35$, $SD = 1.49$) after the identification; $t(65) = 4.569$, $p < .001$. This was not the case for the participants who chose not to identify anyone (pre-confidence; $M = 4.75$, $SD = 1.50$; post-confidence; $M = 4.47$, $SD = 1.72$); $t(104) = 1.703$, $p = .092$. That is, participants who made an inaccurate identification had more of a decrease in their confidence after making a choice in the lineup, supporting H2.

Table 9

Repeated Measures Confidence measured as time.

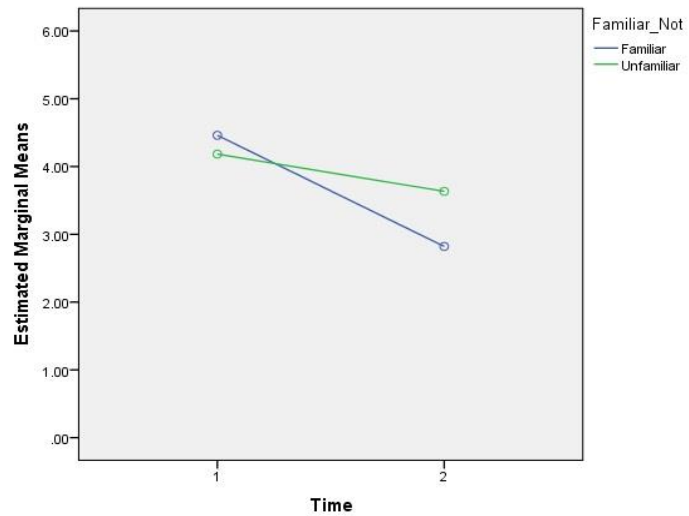
Effect	Wilks'	F-value	Partial Eta Squared
Confidence	.861	25.57***	.139
Accuracy	.946	9.108**	.054
Familiarity	.983	2.770 [†]	.017
Information	.966	2.782 [†]	.034
Accuracy x Familiarity	.966	5.571*	.034
Accuracy x Information	.979	1.729	.021
Familiarity x Information	.978	1.814	.022
Accuracy x Familiarity x Information	.997	0.275	.003

Note. *** $p < .001$, ** $p < .01$, * $p < .05$, [†] $p < .10$

There was also a significant interaction on accuracy by familiarity, when measuring confidence at two different times, Wilks' Lambda = .966, $F(1,159) = 5.57$, $p = .019$). When running a split file on accuracy to determine what is driving this effect, we found that participants in the familiar condition, who identified incorrectly in the simultaneous line-up, expressed that they were more confident about their identification ability during the first measure of confidence ($M = 4.33$, $SD = 1.55$), in comparison to

their final measure of confidence after they made the identification ($M = 2.92$, $SD = 1.32$); $t(23) = 4.377$, $p < .001$. Meaning that participants who misidentified in familiar conditions, were less confident in their identifications in their post confidence measure, after stating they were very confident they could make the identification, supporting H3. This effect of pre-confidence ($M = 4.19$, $SD = 1.31$) significantly differing from post-confidence ($M = 3.60$, $SD = 1.55$) is also present for participants who misidentified incorrectly in the unfamiliar condition, but not as strong, $t(41) = 2.519$, $p = .016$ (See figure 5).

False Identification



Correct Rejections

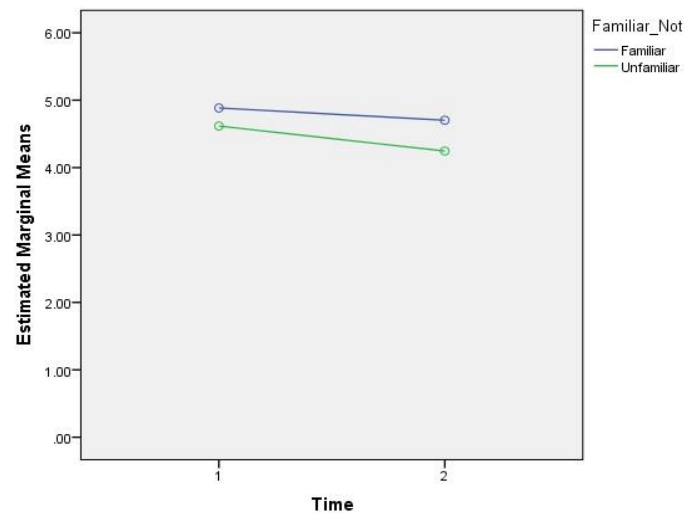


Figure 5. Accuracy X Familiarity on Confidence shows that pre and post confidence differs in familiarity based on the outcome of accuracy.

The final hypothesis (H4) was not supported, as there was no main effect on confidence and the information type that was received; Wilks' Lambda = .966, $F(1,159) = 2.782$, $p = .065$. However, there was a trending effect where participants were more confident they could make an identification when receiving negative information, but less confident after they made their identification (see Table 10).

Table 10

Pre and post confidence mean ratings based on accuracy.

		Pre-confidence		Post-confidence		df	t
		M	SD	M	SD		
Wrong							
<u>Familiar</u>	Negative	5.20	0.84	2.60	1.67	4	-3.83*
	Neutral	4.18	1.54	3.36	1.36	10	-2.32*
	Positive	4.00	1.85	2.50	0.93	7	-2.29 [†]
<u>Unfamiliar</u>	Negative	4.23	1.36	3.69	1.55	12	-1.24
	Neutral	4.08	1.31	3.91	1.73	11	-0.35
	Positive	4.24	1.35	3.29	1.45	16	-2.70*
Right							
<u>Familiar</u>	Negative	5.35	1.22	5.18	1.28	16	-0.64
	Neutral	4.44	1.75	4.75	1.88	15	0.58
	Positive	4.86	1.28	4.18	1.76	21	-2.30*
<u>Unfamiliar</u>	Negative	4.17	1.89	4.33	2.03	17	.342
	Neutral	4.88	1.50	4.47	1.23	16	-1.02
	Positive	4.80	1.15	3.93	1.94	14	-1.94 [†]

Note. * $p < .05$, [†] $p < .10$

Discussion

Summary of Results and Implications.

Manipulation checks showed that the perceived judgments of trustworthiness, competence, and attractiveness did not impact the familiar and unfamiliar groups, showing that positive judgments towards familiar people are not pulling any of the identifications. They also showed that the accuracy hit rate was not significant to just one of the targets, showing that these results are not because of an individual person. Finally, they showed that the participants' perceived the first impression information as being positive, neutral, and negative at the appropriate times.

As noted in the introduction, within the eyewitness literature, there is speculation that familiarity in identifications do cause errors related to accuracy in target-absent line-up, but improvement in target-present line-ups (Collishaw, & Hole, 2000; Kerstholt, et al, 1992; Read, 1995; Read, et al, 1990). When giving information to the individual, we hypothesized that first impression information would influence accuracy in target-absent line-ups. Specifically, I hypothesized that participants who were familiar with the target would have better accuracy in target-absent line-ups when receiving positive information. Similarly, I hypothesized that individuals receiving negative information would be less accurate in target-absent line-ups.

A logistic regression was run and found that familiar group did have better correct rejection rates, but when comparing the first impression information conditions, it was found that no specific condition was significantly different. When looking at the percentage means, the neutral conditions (control) have no significant difference from each other. They both have an accuracy percentage of 59%. When participants are given

information about the target, the accuracy percentages are in the 70th percentile ranges. This shows why there is no significant difference between the first impression information, because when participants receive information in general there is an increase in accuracy. This is only the case for the familiar group. When the participants are unfamiliar to the target, their accuracy is average, and for the positive condition, below average. It can also be shown here more clearly that the accuracy difference in the negative condition when comparing the familiar and unfamiliar groups is substantial. The hypotheses is partially supported. It should be noted that there is a substantial difference between the familiar and unfamiliar groups, as well as a substantial difference within the familiar group between the neutral condition and the first impression information. These findings are interesting, mostly because it shows that our first impressions are having an impact on correct rejections in target-absent situations where the eyewitness has had previous exposure to the target. This could also be explained by a phenomenon called the polarization effect, more specifically relevant to the positive information conditions. Several researchers have explained that people who hold strong prior beliefs before being exposed to new information may reinterpret the new information as support for their belief (Fiske & Taylor, 1991); or receiving ambiguous information will count as support of their prior belief and serve as evidence to their maintain attitude (Sherman, Judd & Park, 1989). Also, individuals who are exposed to information that contradicts their current belief causes them to feel even stronger about their prior belief (Higgins & Bargh, 1987). This area of research could explain the polarization of both the negative and positive conditions.

This experiment also adds to the current existing first impression literature. In current literature on first impressions, Baker, et al (2013) suggests that first impressions, though resilient, can be swayed by additional information when that information is negative. The current experiment manipulated the idea of familiar and unfamiliar first impression situations and found that when the information was given to the participant first, results showed that the target was perceived as being less trustworthy and less competent if information suggesting a negative past was existent. This effect was not evident when the participant saw the individual before they were given the information, making them familiar to the eyewitness. There was no difference in judgments as a result of being exposed to additional information. This study suggests that simply encountering a person for a short time (even through a photo) can create a resilient first impression of that individual. This finding also helped with the manipulations within the experiment, ensuring that there was a clear difference between the first impression information conditions. There are several implications that can be discussed in regards to these findings alone. First, in situations where someone is unfamiliar to an individual, the information that is given to them about this said person, can be detrimental to their first impression of the target. Second, it can be said that if a person is familiar with the individual, additional information about them will not waiver the initial first impression that they have about the target. Finally, asking someone their perceptions of trust, competence, and attractiveness of an individual may be a tool to assess whether or not someone's accuracy in a target-absent line-up should be considered adequate.

Confidence ratings have been a topic of consideration and discussion within the eyewitness literature (Kerstholt, et al., 1992; Read, et al., 1990). Due to the literature on

confidence and target-absent line-ups suggesting that higher confidence is linked to more errors (Kerstholt, et al., 1992; Read, 1995; Read, et al., 1990), it was hypothesized that participants in the familiar group would be more confident in their identifications compared to the unfamiliar group. It was also hypothesized that participants who chose a foil, their post confidence ratings would be significantly lower in the familiar group. It was found that there was confidence differences amongst the conditions, but not when it came to familiar and unfamiliar groups. This was a trend, but it was not significant.

Where confidence shown significance was in accuracy. Participants who chose to identify a foil, had a significant drop in confidence in comparison to participants who chose to reject the line-up. There was an interaction when measuring confidence with accuracy, and familiarity where participants who were in the familiar group, who falsely identified scored lower in their post confidence ratings. Overall, there was a great response rate for accuracy in the familiar group, but the ones who were “choosers”, their confidence significantly fell after completing the identification. These findings do not support the confidence and familiarity phenomenon discussed in past literature, but this effect is trending. This could be impacted by the first impression information that is given, as this effect is also trending. Unfortunately, without a two-way interaction with familiarity, and first impression information when measuring confidence, it is difficult to assess why this finding is not significant. Where confidence is significantly less in the familiar groups in the post measures, where participants were inaccurate in their identifications, there is some support for the confidence and accuracy literature.

Unanswered Questions and Future Directions

As with any experiment, there are unanswered questions and opportunities for future research. A larger sample size would have been ideal. There were several effects that were trending in a direction that suggested that additional power might have resulted in significant effect. Specifically, within the negative conditions where there was a substantial accuracy difference between the familiar and unfamiliar condition, showing that the effect was more than 2 times likely to happen within the negative condition, and yet was not significant¹¹.

A second issue that a reader might consider is the realism of the eyewitness situation. Eyewitnesses normally have contact with individuals they are identifying in a familiar situation, meaning that for this experiment, their exposure to the image is more of a mundane realism experimental manipulation. Also, eyewitnesses would have been exposed to multiple faces during their time at a diner; the wait staff, other customers, and also the friend they are at the diner with. This again would be a mundane experimental manipulation. Ideally, I would have liked to compare a target present lineup to these findings. Currently, we are unaware that this familiarity accuracy phenomenon with first impression literature is not happening in target present lineups. This does not impact the current results per say, as these findings do add to the current eyewitness literature relevant to familiarity.

Next Steps

There are several obvious directions to pursue with this research. First, it would be fruitful to conduct an experiment addressing the target present lineup conditions.

¹¹ Unfortunately, I did not foresee this effect happening based on the previous literature in first impression information used in Baker, et al (2013) where the negative information and positive conditions differed.

Replication of the current findings, and an added target present condition will allow for these findings to be better supported. It can be assumed based on the previous familiarity eyewitness literature that the eyewitnesses in the target-present line-ups conditions will be able to identify their suspect correctly. Within such an experiment, there would also be an added first impression information condition where participants will receive more information about the target, but information will be a mix of positive and negative impressions. Here it is possible to see if information in general is helping with the accuracy finding, or if it is more complicated than this initial finding. It would also be interesting to see if the sequential lineup procedure is as successful as the simultaneous lineup was in this experiment. Using these manipulations, it can be tested if this effect happens within several different eyewitness procedures.

Another direction for future research would be to explore of this phenomenon would occur in other contexts. The next step in this experiment naturally would be to look at this experiment using different manipulations. Having people from different ethnicities identifying if there is a cross race effect within the familiarity situations. I would argue that this may not necessarily be related to a cross race effect, but potentially associated with a stereotype threat. Also, exposing people to different faces, having different exposure times, and asking people to make identifications days after could have an impact on the current findings.

Finally, there is an opportunity with the three factors (exposure, first impression information, and judgments) to create a structural equation model (see figure 6). Based on the current findings from this experiment, a larger population may produce a

mediation with several factors. There are multiple models that could be tested for exploratory reasons with a confirmatory factor analysis, but the current diagram is only a hypothetical layout of potential relationships present within these factors and outcomes.

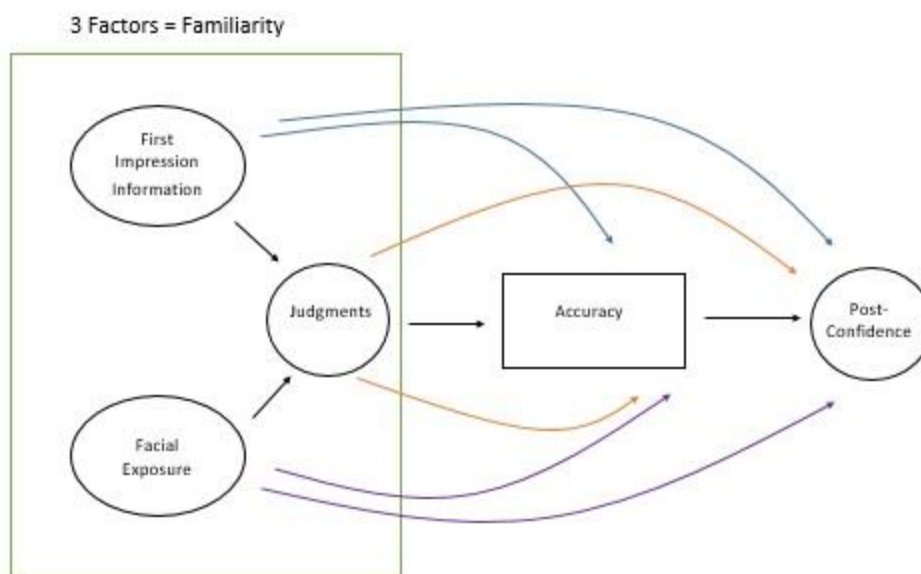


Figure 6. Hypothetical relationships between several factors within the experiment.

Conclusion

The purpose of this experiment was to determine if first impression information had an impact on accuracy in target-absent line-ups, when eyewitnesses were familiar to the target. Based on the findings in this experiment, it could be argued that this is very much the case. Participants in familiar information based conditions had a higher accuracy rate when they were making the identification, comparing to participants in unfamiliar conditions with the same information. There are substantial findings from this experiment which could be applied directly to an eyewitness identification procedure with work and replication. First, understanding if the eyewitness has any previous contact with a suspect could greatly impact the identification process in target-absent line-ups.

Where previous literature suggests that familiarity boosts confidence, and lowers accuracy; it would need to be assessed if this familiarity is based on actual information given to the eyewitness, or just physically seeing the suspect. Second, it would be valuable to ask the eyewitness what they know about this individual. As previously determined, the type of first impression that they have does not impact the accuracy outcomes, but if the Police understand that the eyewitness have some form of past knowledge about this familiar individual, this familiarity may improve their accuracy in a target-absent line-up. Finally, there may be some flexibility when it comes to confidence ratings, seeing a decline in a confidence rating, may allow investigators to assess accuracy in a familiar suspect situation.

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Appendix A. Demographics Questionnaire

1. What is your Gender? _____
2. What is your Age? _____
3. How many people lived in your household when you lived at home? _____
4. What is your occupation? _____
5. Please state what your household income was when you were living in your guardians house.
 - i. \$20,000 or lower
 - ii. \$20,001 - \$35,000
 - iii. \$35,001- \$50,000
 - iv. \$50,001- \$70,000
 - v. \$70,001- \$90,000
 - vi. \$90,001 and above.
6. What socioeconomic status do you consider yourself from? (Low, Middle, High)
7. Where are you from? _____
8. What is your ethnicity? _____
9. How did you learn of this experiment?
 - a. Sona System
 - b. PowerPoint in Class
 - c. Social Media
 - d. Dr. Tanya Peckmann
 - e. Other _____

Appendix B. Script

FAMILIAR CONDITIONS 1-6.

You and a friend are sitting in a diner when someone approaches your table. This individual is a stranger to you, but an acquaintance to your friend.

The targets image will be visible to the participant

Friend: Oh hey John, How are you?

Stranger: I'm doing well, I's been awhile! How are you doing?

Friend: Great! It was nice seeing you!

Stranger: You too, have a good day.

Image of the stranger is removed

When the stranger has left, your friend leans in and tells you something...

Depending on the condition, this information will change

**Negative information option 1: *"That was John. I went to high school with him. He basically failed every class he was ever in. As you can see, he did not amount to much. I am not sure what he does for a living, but I know that when we were in high school he used to sell drugs instead of getting a real job like the rest of us."*

Neutral information Option 2: *"That was John. I went to high school with him. I had a few classes together."*

Positive information Option 3: *"That was John. I went to high school with him. He was a straight A student. As you can see, he is pretty successful. I*

*am pretty sure he went to school for dentistry, but I know that when we were in high school he used to be on the yearbook committee and was involved in the community center.” ***

UNFAMILIAR CONDITIONS 7-12

(opening is different)

You and a friend are sitting in a diner when your friend brings up a recent encounter they had with an old school mate.

Depending on the condition, this information will change

***Negative information option 1: “So I recently ran into a guy I went to high school with, John. He basically failed every class he was ever in. From what I could see, he did not amount to much. . I am not sure what he does for a living, but I know that when we were in high school he used to sell drugs instead of getting a real job like the rest of us.”*

Neutral information Option 2: “So I recently ran into a guy I went to high school with, John. We had a few classes together. I always find it interesting to see how other people are doing since high school.

*Positive information Option 3: “So I recently ran into a guy I went to high school with, John. He was a straight A student. From what I could see, he is pretty successful. I am pretty sure he went to school for dentistry, but I know that when we were in high school he used to be on the yearbook committee and was involved in the community center. ***

Filler task instructions

The waitress gives you the menu.

You only have \$20.00

Goals:

You must choose at least 3 items off the menu to create an appropriate dinner. (Ex.

Appetizer, Main course, Drink.)

(You can't just choose the sides, remember this must be a meal).

Make sure to add the tax which is at 15% (For every \$ you add .15).

Do your best to stay under \$20.00

It is time to leave, you and your friend make your way to the exit in front of the store. When you open the door you noticed something odd.

****Ambiguous video plays****

Participants are asked to describe the individual in the video

Participants will be asked to make judgments about the target in the video

A police officer approaches you shortly after, and asks you how confident you are that you could identify this individual from an eyewitness line-up.

Rating of confidence

***Receive a target-absent lineup**

Rating of post-confidence they made the right decision

Appendix C. Targets

Target 1



Target 2



Appendix D. Simultaneous Line-up



Appendix E. Judgment scales

This person is trustworthy.

1. Strongly Disagree
2. Disagree
3. Somewhat Disagree
4. Neither Disagree or Agree
5. Somewhat Agree
6. Agree
7. Strongly Agree

This person is competent.

1. Strongly Disagree
2. Disagree
3. Somewhat Disagree
4. Neither Disagree or Agree
5. Somewhat Agree
6. Agree
7. Strongly Agree

This person is attractive.

1. Strongly Disagree
2. Disagree
3. Somewhat Disagree
4. Neither Disagree or Agree
5. Somewhat Agree
6. Agree
7. Strongly Agree

Appendix F. Confidence Measures

Pre-Confidence

1. How confident are you that you can identify the individual you saw running today?

1-----2-----3-----4-----5-----6-----7

Not at all

Neutral

Very confident

Post-Confidence

2. How confident are you that you made the right identification in the lineup?

1-----2-----3-----4-----5-----6-----7

Not at all

Neutral

Very confident