

Whose Lie is it Anyway?
Eyewitness Memory, Misinformation Effect and Public Perceptions of Police

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Abstract

Despite memory being considered unreliable and open to suggestive influence, eyewitness memory is still actively used as evidence in the justice system. Misleading information and the source of that information has been found to influence people's memory of an event. Similarly, the perceived credibility of a source can impact how a person receives a message from this source. As police are often the first responders on the scene taking eyewitness statements, misleading information relayed by police to eyewitness' may be readily accepted by those who trust the police and perceive them to be a credible source. We hypothesised that participants with high trust in police would be more likely to accept the misleading information and decrease their memory accuracy of the event. The memory of participants with lower trust in police would not, or less so, be affected by the misleading information. Seven hundred and fifty-six participants completed an online survey that involved watching a video of a theft at a petrol station. Following this, participants were presented with one of six articles from either a police or eyewitness point of view describing the theft. These articles had differing levels of misinformation (no misinformation, weak misinformation, or strong misinformation). To test participants memory accuracy, they were then asked questions about the video. We found that misleading information affected memory accuracy. However, we found no evidence to suggest that trust in police influences participants acceptance of misleading information from a source. As we did not find what we expected, we recommend further research to expand on the idea that trust in police may affect the susceptibility of accepting misinformation which could decrease memory accuracy.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgments), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed:

Date: 2.5.22

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The ethics application was approved by Auckland University of Technology Ethics Committee (AUTEC Reference 21/324).

Whose Lie is it Anyway?

Eyewitness Memory, Misinformation Effect and Public Perceptions of Police

In 1985, Kirk Bloodsworth was sentenced to death for the rape and first-degree murder of a nine-year-old girl (The Innocence Project, 2021). Despite the description of the perpetrator (6 ft 5", skinny and curly blond hair) being entirely different to Kirk (6 ft, red hair and over 200 pounds), and no physical evidence connecting Kirk to the crime, five eyewitnesses still testified against him. In 1993, after serving over 8 years of his sentence, Kirk was exonerated based on new DNA testing proving his innocence. Cases like these are all too common. Between 1989 and 2014, of the 367 cases which had been exonerated in the United States due to DNA evidence, 252 cases were sentenced to prison because of eyewitness misidentification (West & Meterko, 2016).

1.1 Eyewitness Memory

Eyewitness memory refers to an individual's recollection of a crime or event they have witnessed (Wixted et al., 2018). Eyewitness statements are taken by police to piece together details of a crime such as the identity of the offender (Albright, 2017; Wixted et al., 2018). How an event is remembered can depend on how the individual interprets it. For example, Loftus and Pickerall (1995) successfully implanted a false event of being lost in a mall as a child into the memory of several participants. It was concluded that individuals may remember events that never actually happened through suggestion. Memories are constantly being reconstructed by including new information into existing memories (Albright, 2017; Pena et al., 2017). According to Bridge and Paller (2012), each time a past event is remembered, the original memory is then reconstructed with pieces of a new memory. If you remember something in a new environment, the new memory may absorb and include the surrounding information. Thus, memories change and become distorted over time. Therefore, exposure to misleading information is part of the mechanism that distorts memories (Williamson et al., 2013).

1.2 The Misinformation Effect

One factor shown to cause eyewitness misidentification is the *misinformation effect* (Loftus & Palmer, 1974). The misinformation effect occurs when misleading information after an event interferes with the individual's memory of the original event (Loftus & Palmer, 1974). Research has found evidence supporting the misinformation effect and how this can affect eyewitness memory across various types of events, ages and methods (Blank et al., 2021; Eakin et al., 2003; Gurney et al., 2013; Loftus & Palmer, 1974; Loftus et al., 1978; Pansky et al., 2011; Zaragoza et al., 2007). In a classic study where participants watched videos of cars crashing, Loftus and Palmer (1974) found that even the most subtle change of information after witnessing an event can dramatically alter an individual's memory. Participants in alternative conditions were asked questions such as "About how fast were the cars going when they [bumped vs hit vs smashed] each other?", they found that participants in the "smashed" condition, reported higher speed estimates than those in the "bumped" condition. These findings suggest that the way a question is asked post-event can influence participants original memory of the event. Loftus (1979) found that the magnitude of the misinformation effect is less when blatant misleading information is used. For example, stating a car was blue when it was red. Also, individuals who resist misleading information about important details of a crime, like an offender's identity, are more likely to resist smaller details, like the colour of the stolen item. It is thought this occurs because they analyse the information more carefully (Loftus, 1979).

Zajac and Henderson (2009) conducted three experiments where two people (one participant and one confederate) view a video of a crime. After the video, the confederate tells the participant that the offender's eyes in the video were blue. Results show the misinformation effect occurring in each experiment with the participants including "blue eyes" in their description of the offender. Blank and Launay (2014) conducted a meta-analysis of post-warning studies. This means that participants were warned of the misinformation effect after watching the video or reading the article. For example, participants were told that as the police officer was inexperienced, some of the information provided in the article may be inaccurate (Blank & Launay, 2014). Numerous studies in this meta-analysis confirmed the existence of the misinformation effect even though participants were warned of its existence (Blank et al., 2013; Blank et al., 2021; Eakin et al., 2003; Gurney et al., 2013; Payne et al., 1994; Zaragoza and Lane 1994).

Despite these findings, researchers have debated the existence of the misinformation effect under different conditions. It is argued that the misinformation effect has a greater impact on memory during the standard experiment when participants can choose between the original information and misleading information (Belli, 1989). McCloskey and Zaragoza (1985) suggested that the introduction of misleading information post-event, causes participants' memory of the original event to be impaired. Therefore, acceptance of post-event information explains the misinformation effect. Misinformation acceptance is when participants do not remember the original information but incorporate the introduced misleading information. This occurs as a result of memory interference. During encoding, new information may interfere with the original memory which can cause disruption or distortion of memories (Susic-Vasic et al., 2018). Therefore, when asked about the event, if participants couldn't remember the original detail, they instead chose to accept the misleading information even though they were warned of the possibility of the misinformation effect. Further, Belli (1989) expanded on the research by McCloskey and Zaragoza (1985) and found evidence to support that the introduction of misleading information after witnessing an event may cause memory impairment of details in the original event. This is due to participants accepting the misleading information as the only acceptable answer when being tested on their memory of the event (Belli, 1989).

In contrast, Zaragoza and Koshmider (1989) found that introducing misleading post-event information does not impair the participant's ability to retrieve original details of the event (McCloskey & Zaragoza, 1985). Rather, participants fail to encode important details such as a stop sign or eye colour and accept the misleading information to fill an unknown gap in their memory.

Zaragoza and Koshmider (1989) conducted similar research to Loftus et al. (1978) to understand whether or not participants who are exposed to misleading information after the event are more likely to believe the misleading information and accept this as true. In the study, participants watched photographic slides of a car at a stop sign. After this, participants in one of two conditions (misleading information or true information) read a story of what they saw. They found no evidence to suggest that participants believed the misleading information was what they saw in the original power-point slides. However, one limitation of this study is that there was no time delay for their first experiment. Participants were quizzed on their memory immediately after the slides of the event. This is considered a limitation because when their memory is tested immediately after the slides, it is likely the details of the event are easier to remember (Rivardo et al., 2013).

In their second experiment, there was a 24-hour delay before memory testing (Zaragoza & Koshmider, 1989). This time delay is more applicable to the realistic context of taking an eyewitness statement or testimony. It may take hours, or longer, after the event for police to collect an eyewitness statement (Wheatcroft et al., 2015). Police may write down the initial details at the crime scene and then ask the witness for a more in-depth statement at the station. Alternatively, if the crime is not serious, police may contact the eyewitness more than 24 hours after the event to take a statement. Although a longer time delay is more realistic, this could increase the possibility of the misinformation effect occurring. The eyewitness may have discussed details with a co-witness which could expose them to misleading information (Rivardo et al., 2013). Also, eyewitness testimonies can take weeks, if not months, for the eyewitness to be presenting their statement in court and the possibility of exposure to misinformation through media and news reports before giving a statement is possible. Therefore, Zaragoza and Koshmider (1989) suggest that participants could believe they saw the misleading information after a long time delay than what they used in their experiments.

McCloskey and Zaragoza (1985) further argued that participants who failed to encode an original detail are more likely to select the misleading information as it is more recently presented and all they remember. This can suggest a lack of confidence or certainty in their memory as participants may just select the misleading information if they are not sure of what they saw or were not paying attention to the smaller details. If there is no forewarning, participants have no reason not to trust the misleading information. It is thought that the relationship between confidence and accuracy is straightforward. The more confidence someone has in their memory, the more likely they are to be correct (Auslander et al., 2017). However, some research suggests that individuals who report higher confidence in memory are more susceptible to misleading information than those who report lower confidence in memory. Therefore, those who were more confident were less likely to be correct than those with lower confidence (Auslander et al., 2017). This can indicate that confidence is not always an indicator of accuracy (Lindsay et al., 1981).

1.3 Source Credibility

Source credibility can also affect the magnitude of the misinformation effect (Dodd & Bradshaw, 1980; Vornik et al., 2003; Williamson et al., 2013). The credibility of a source depends on their perceived trust and expertise, this is determined by the receiver (Olson & Cal, 1984). Previous research demonstrates that misleading information is discarded if a source is perceived to lack credibility (Dodd & Bradshaw, 1980; Pena et al., 2017; Skagerberg & Wright, 2009; Underwood & Pezdek, 1998). When warned about low source credibility, individuals scrutinise the source more carefully than those who were not warned. For example, in Echterhoff et al.'s (2005) study, while speaking to participants, the researcher discredited the source as being incompetent. The 'warned' individuals then dismiss misleading information more frequently and can monitor their memory of the original event more closely (Echterhoff et al., 2005; Skagerberg & Wright, 2009). In Pena et al.'s (2017) study, misleading information in a narrative written by the "previous participant" (unknown to the current participant) was varied between weak, medium or strong. After watching a mock-crime video, participants read one of the narratives describing the video. Researcher's found that participants who received stronger misleading information answered questions less accurately than participants with weak misleading information. However, the participants with the strongest misleading information reported the highest level of doubt and resistance. The participants with the strongest misleading information also perceived the source to be less credible. This provides evidence to suggest that the less credible a source is perceived to be, the doubt in participants memory confidence and resistance to misleading information could increase.

1.4 Authority

Similarly, credibility paired with authority could result in the acceptance of misleading information. Williamson et al.'s (2013) asked participants to watch a crime-related video seated next to a confederate and were made to believe they were either an electrician (low credibility/expertise) or an ex-police officer (high credibility/expertise). After the video, the confederate introduced misleading information. Results found the misinformation effect occurred in the ex-police officer condition but not in the electrician condition. As both studies (Dodd & Bradshaw, 1980; Skagerberg & Wright, 2009) used an event example relating to crime, the expertise police have in this context, in comparison to the lawyer or child, could have influenced the acceptance of misleading information.

Furthermore, some individuals perceive police officers to be highly credible sources, which could also influence their willingness to accept misleading information from the police (Tyler, 2004; Williamson et al., 2013). Therefore, based on this evidence, it is expected that if a police officer is perceived to be a credible source by the eyewitness, participants may be more likely to accept misleading information, which could skew their memory of the original event (Dodd & Bradshaw, 1980; Skagerberg & Wright, 2009; Williamson et al., 2013).

Dodd and Bradshaw (1980) conducted a study similar to Loftus and Palmer (1974). After watching a video of a car crash, participants were presented with misleading information about the crash from the perspective of a defence lawyer of the driver who caused the crash or an adult bystander who witnessed the crash. The misinformation effect occurred in the bystander condition; participants were more likely to accept misleading information from the innocent bystander as opposed to the defence lawyer. Although a lawyer was perceived to have higher authority, it is believed participants thought the defence lawyer was deceptive as their job was to defend the person who caused the crash. Lawyers are skilled in persuading an audience to believe a specific side of a story, therefore, participants may have considered them to be less credible (Dodd & Bradshaw, 1980; Hoeken et al., 2016). Similar results were found between a psychologist (high authority) and a student (low authority), (Paddock & Terranova, 2001). These findings were expanded upon in Skagerberg and Wright's (2009) study where the misinformation effect occurred in the high authority condition (a police officer from an identification unit) while no effect occurred in the low authority condition (a child). It is thought that as police officers are perceived to have greater authority and expertise than a child, in the context of a crime, the misinformation was accepted as true (Skagerberg & Wright, 2009). Also, regardless of authority, one reason that participants may have chosen police over a child source is that the police officer is an adult, and adults may have better comprehension skills, language ability and memory retention in comparison to a child. Also, while children are still capable of reporting correct details in memory tasks, they tend to be less accurate than adults (Goodman & Melinder, 2007). Therefore, it is likely this could have influenced the participants responses in this study.

1.5 Trust in Police

The level of trust an individual has in police could be a result of how likely they are to submit to authority (Williamson et al., 2013). Therefore, credibility and authority combined may influence the level of trust in police an individual has. For example, if an individual reports higher authoritarian submission (level of submission to authority), and also suggests that the police are a credible source, then it would be expected that trust in police was to increase. Further, if we were to compare a police source and an eyewitness source, an eyewitness may not have any credibility or authority compared to police, therefore, the individual may trust the opinion of the police over the eyewitness (Skagerberg & Wright, 2009).

The level of trust individuals have in the police may also be influenced by several factors, such as controversial events like the sexual allegations against seven police officers made by Louise Nicholas (Jordan & Mossman, 2019; Samkin et al., 2010). Misconduct can create tension in the relationships between police and communities (James, 2000; Mourtgos et al., 2021). Without the public's trust, it is harder for police to build on their community relationships and benefit from public cooperation. Negative interactions could also occur through 'hotspots policing', this strategy involves targeting police resources where crime is most concentrated. This aims to reduce crime in these areas overall, however, more low-level arrests can occur than usual and can leave these communities feeling unfairly targeted and threatened (Crowl, 2017). This feeling may be more prevalent in Māori and Pasifika communities as these populations have reported more negative experiences with police than Europeans in New Zealand (Tauri, 2009).

Trust in police is considered subjective and depends on how confident the public feels to rely on the police to do their job effectively, with the community's best interests in mind (Nix et al., 2015). In order to respond to a crime, police are usually alerted by the public. Without eyewitnesses, crimes remain unsolved as inquiries need public cooperation (Tyler, 2004). If an individual has low trust in police, they are less likely to cooperate or comply with the police orders (Nix et al., 2015; Tyler, 2004). While, someone with high trust in police may perceive the police to act fairly, express diverse community values and effectively conduct their job by maintaining public safety (Tyler, 2004). Trust can also be motive based, meaning the level of good faith the police have when responding to public needs (Tyler, 2004). Research has found that one important aspect of police behaviour is whether police actions follow procedural justice (Tyler, 2004). Procedural justice emphasises transparency and responding to public concerns with fairness and the best interests of the community in

mind. If an individual believes that a police operation toward a target group involves exclusion or racial profiling, trust in police within this group is expected to decrease (Tyler, 2004). Higher public trust in police enhances the effectiveness and legitimacy of police actions. The concept of legitimacy and motivations of the police are also essential for successful policing. If police behaviours are perceived as fair, rather than abusive or biased, the individual is more likely to have confidence that the motivations of police are to help and police legitimacy increases (Tyler, 2004). Understanding the public trust in police is an important part of protecting the community as any downfalls identified in police operations can be included in the training of new and current officers to improve police performance (Tyler, 2004).

In a 2020 Citizen's Satisfaction survey, the level of trust and confidence the public have in the New Zealand police was 77% (New Zealand Police, 2020). Similar results were found in 2015 with 78% trust and confidence in the police (New Zealand Police, 2015). This has remained relatively consistent over the past years with 75% in 2010 and 77% in 2012 (New Zealand Police, 2010; 2012). As these data were collected by the New Zealand police, results may be biased. This could depend on how public complaints are managed and investigated, or, the willingness of the public to report incidents to the police (Briody & Prenzler, 2020). One independent study found 59% of respondents reported having complete or a lot of trust in the New Zealand police which differs from the Citizens Satisfaction Surveys (Chapple & Prickett, 2020). It could be argued that the trust between New Zealand communities and the police is relatively high due to the lack of routinely armed police. Yesberg et al. (2020) found in Great Britain when police were armed, a fearful environment was created which can distance the public and police at both an individual and societal level. The fear and distance this armed environment creates can dissolve the trust communities have in the police. As the New Zealand police have built their strategies and policing style around communities and public trust, they can't afford to lose public trust. Even though over half of the respondents in each study reported high levels of trust, there is still a proportion of the New Zealand public who distrust the police, leaving room for improvement in police conduct (Briody & Prenzler, 2020).

1.6 Ethnicity and Trust in Police

Trust in police is considered an essential aspect of the community policing style of the New Zealand Police. Interactions with the police, whether that be positive or negative are remembered and will influence the level of trust an individual has in the police (Panditharante et al., 2021). The relationship between police and people can become strained, particularly for minority communities such as Māori and Pasifika when they feel their communities are being unfairly targeted. Studies have found that Māori perceptions or attitudes toward the police are low with a strong feeling of distrust toward police compared to Pākehā (Panditharante et al., 2021; Tauri, 2009). This is due to the ongoing negative experiences that Māori may encounter with police, including but not limited to, excessive stopping, over-policing of Māori communities or maltreatment (Panditharante et al., 2021). Pasifika people have also reported the same ethnic discrimination including being over-policed (Crengle et al., 2012). Regardless of ethnicity, these actions or maltreatment from police can result in an overall loss of trust in the police organisation and people becoming hesitant to ask for police assistance, even if a crime is being committed against them (Crengle et al., 2012). The New Zealand Police have admitted to having an unconscious bias in their police practises (Rachlinski et al., 2009). An unconscious bias refers to learned stereotypes of a specific group (Rachlinski et al., 2009). Often, the individual is unaware that they hold these beliefs and prejudice. As Māori and Pasifika have reported similar negative experiences with police, it is argued that the cause of these experiences is due to these unconscious biases within the police. Therefore, it is expected that Māori and Pasifika people have similar levels of trust in the police because of the biases and differences that they face.

1.7 Rationale and Hypotheses

To conclude, previous studies have looked directly into the misinformation effect and what factors can influence the magnitude of this effect occurring (Gurney et al., 2013; Loftus et al., 1978; Loftus 1979; Zaragoza et al., 2007). Generally, results have concluded that source credibility is a major factor that can impact the likelihood of an individual accepting misinformation as true (Dodd & Bradshaw, 1980; Pena et al., 2017; Skagerberg & Wright, 2009; Underwood & Pezdek, 1998). Although this relationship has been established, there is a gap in the literature surrounding how public trust in police affects eyewitness memory.

Therefore, it is essential to investigate the relationship between eyewitness memory and public perceptions of the police.

One question this study aims to answer is; Does source and misleading information affect eyewitness memory, and does trust in police moderate this relationship? We hypothesise that the source will affect the acceptance of misleading information. It is expected that participants who have higher trust in the police will be more likely to accept the misleading information from the New Zealand Police than participants who have lower trust in the police.

Secondly, we ask; Does the source of misleading information affect the eyewitness' confidence in memory? We hypothesise that participants will be more confident in their memory when presented with true information compared to strong misinformation. We also expect that participants with higher trust in police will have higher confidence in their memory when presented information from a police source, even if it contains misleading information.

Lastly, as authoritarian submission is a possible covariate, we ask; Do source and misleading information affect memory accuracy or confidence in memory, and is this moderated by authoritarian submission? We hypothesise that we will see a decrease in memory accuracy in the police condition for participants who score higher for authoritarian submission. We also expect to see an increase in confidence in memory in the police condition for participants who score higher for authoritarian submission.

2.0 Method

2.1 Participants

Of the 756 participants in this study, 575 were females, 168 were male, 3 identified as “Other” and 10 selected “Prefer not to say”. The mean age of participants was 42.4 years. The majority of participants were New Zealand European ($n = 542$, 71.8%), with the next largest population being Māori ($n = 87$, 11.5%), European ($n = 57$, 7.5%) and Pasifika ($n = 14$, 1.8%). Some participants ($n = 56$, 7.4%) identified as “Other”, this included a variety of ethnicities such as Native American, Asian or New Zealand European and Māori.

2.2 Design

We conducted a separate analysis for each question including a 2 (source: police vs civilian eyewitness) x 3 (level of misinformation: high vs. low vs. true) factorial design. This was used to analyse our independent variables: source and misleading information eyewitness (no misinformation, weak misinformation or strong misinformation) and our dependent variables of memory accuracy or confidence in memory. Trust in police or authority were also analysed as the moderators for the relationships between; memory accuracy, misinformation and source. Also, confidence in memory recall, misinformation and source.

2.3 Materials

Before the survey, both a brief and full information sheet was provided to participants. These outlined the important details of the study including but not limited to; potential risks, the purpose of the study and that by completing the survey they are providing consent (see Appendix A). To meet the requirements for this survey, participants were over 16 and were not students of the project supervisors.

2.3.1 Video

To test an eyewitnesses' memory, we used a video that showed a crime simulating what an eyewitness may see in the real world. We decided to use theft as this is one of the most common types of crime in New Zealand (Ministry of Justice, 2014). We watched several videos, however, some were too violent or the camera angle was not realistic enough. Also, a lot of videos of a crime were being broadcasted through the news with a header across the screen pointing out who the offender was or what was occurring. Therefore, we selected this video due to its simplicity, but also the smaller details involved. There is no editing involved where the offender is made obvious to the viewer. There are also several background elements such as the side of the petrol pump, or the road in the background which we used to probe the participants.

Participants were shown a 44-second YouTube video of a theft at a petrol station in America (ABC News, 2012). The footage is from a security camera which is stationed above the doors of the petrol station shop (See Appendix D). A man in a white shirt can be seen walking from a petrol pump into the shop. There are two cars on either side of a petrol pump. The car on the left is blue and a woman is seen walking away from it into the shop. While the silver car on the right is unattended, presumably owned by the man in the white shirt. The offender is seen getting out of a car at the pump next to the silver car. The offender's car is then driven around the petrol pump and parks next to the blue car. The offender can be seen walking across the forecourt toward the silver car and appears to be looking in the windows of this car on the left-hand side. The offender then walks around to the right-hand side of the silver car, opens the door and takes a purse. While doing so, the man in the white shirt is seen sprinting out of the shop toward the offender's car. The offender starts to run away, so the man in the white shirt chases after him. They both run across the road while the offender's car turns right and exits the petrol station.

2.3.2 Level of Misinformation

Due to time constraints, no pilot testing was conducted for this survey. Participants were randomly presented with one of six news articles describing the theft in the video. There were three levels of misleading information (strong misinformation, weak misinformation and true information) and two sources (police and eyewitness). Three articles (1x strong, 1x weak and 1x none) reported the incident from the perspective of an eyewitness, for example, "One

eyewitness reports...”. This was repeated with another three articles from the perspective of the police, for example, “Police believe...”. The strong misleading information included; “One eyewitness reports that the alleged offender reached through the left side window to steal the purse before running from the scene” and “The on-foot offender is reported to be a Caucasian man wearing a white t-shirt, tan coloured cargo shorts and dark sunglasses.”. These pieces of misinformation were chosen for the strong condition because if the participant was paying attention, it was obvious that the offender was on the right side of the car. He was in plain view of the camera and can be seen opening the car door on the right side, not reaching through a window on the left. Similarly, the man in the white shirt can be seen walking into the petrol station shop at the start of the video. While it may have confused the viewer when both the white shirt man and the offender were running off at the end of the video, it is clear that the offender is wearing a navy t-shirt as the white shirt man was not seen near the silver car at any point in the video. He is only seen walking from what seems like the direction of the silver car into the shop.

The weak misleading information included; “... which involves a handbag being stolen from an open car window in plain sight.” and “... dark grey getaway car fled the scene by taking a left...”. The weak misinformation condition was more subtle than the strong condition. The weak condition aimed to require more of the participant’s attention to pick up on these details. One of the main focuses of the video is the offender being chased by the man in the white shirt. The offender’s getaway car drives off at the same time this chase occurs, therefore, it is more subtle to ask which direction the car travelled out of the petrol station. Similarly, reaching into an open car window and opening a car door is similar as the offender bent down to get into the car, therefore, the participant had to be paying close attention to remember that the door was opened rather than the purse being stolen through a window.

Lastly, the true information condition included; “... the alleged offender opened the unlocked right-side door to steal the purse before running from the scene”, “... dark grey getaway car fled the scene by taking a right onto Vulcan Street...” and “The on-foot offender is reported to be a Caucasian man and wearing a navy t-shirt, tan coloured cargo pants and dark sunglasses.”. See Appendix F for the full articles used in the survey.

2.3.3 Trust in Police Scale

Public trust in police was measured with 22 items adapted from Reynolds et al. (2018). Reynold's developed a reduced 34 item scale based on the original 73 item Attitudes Towards Police Legitimacy Scale (APL). The Cronbach's Alpha for this 34-item scale was .98 which reflects high internal reliability. In the interest of time, instead of using all 34 items, we selected 10 items from the trust in police section and 12 items from the police motivations section and combined these items into one scale. Ten items were reverse coded in analysis. This scale has a Cronbach's Alpha of .95 which reflects high internal reliability. This scale reflects the extent to which the public perceives the New Zealand police to be reliable and act in the best interests of the public. It also reflects the public perceptions of police motivations and whether it is believed police are motivated to help. If the public feels that police cannot be relied on, they will be regarded as having low trust on this scale. Items are formatted as a 5 point scale between 1 (Strongly Disagree) and 5 (Strongly Agree) (sample item: "The presence of police makes me feel safe"). Participants could score between 22 and 110 with a higher score indicating high trust in police. To create an aggregate score we added all 22 items to create a new variable with the total scores.

2.3.4 Authoritarian Submission Scale

Duckitt et al. (2010) developed an abbreviated version of The Right-Wing Authoritarian Scale originally developed by Altemeyer (1981). Six out of 12 items from Duckitt's (2010) scale were used to measure authoritarian submission. These six items were selected as they had been tested in a New Zealand community sample. Three items were reverse coded in analysis. There are no reliability scores reported for these six items as a separate scale, however, we reported good reliability with a Cronbach's Alpha of .83 and .87 in two New Zealand samples. Our Cronbach Alphas were also found to be high with .78 which reflects good internal reliability. Authoritarian submission refers to support for existing authorities such as government agencies. These items are scored on a 1-5 response scale from 1 (Strongly Disagree) to 5 (Strongly Agree) (sample item: "What our country needs most is discipline, with everyone following our leaders in unity."). Participants could score between 6 and 30 with higher scores reflecting a more submissive reaction to authorities like police, such as agreeableness, and also the motivations to maintain social order and cohesion in society. To create an aggregate score, we added all six items to create a new variable with the total scores.

2.4 Procedure

Qualtrics (2022) was used to develop the survey online. Convenience and snowball sampling were used to recruit participants through email and Facebook Messenger, however, the main recruitment method was Facebook community pages around New Zealand. For Facebook recruitment, the survey was posted after 6 pm on weekday evenings to maximise response rate, reduce spam in similar community pages and ensure the data collection was continuous.

After clicking the link and confirming consent to participate, participants were asked to watch a video (see Appendix D). Following this, participants were presented with a filler task that was incorporated to simulate a real-world situation where there is a time delay between witnessing a crime and providing a statement to the police. Participants had three minutes to play Fruit Flip, an online card matching game (see Appendix E). Once the three minutes were up, the survey automatically advanced to the next task.

Afterwards, participants were then randomly assigned to one of the six articles and asked to read through it. Once this was completed, to test their memory accuracy, participants were required to select “Yes” or “No” when asked, “Thinking back to the video you watched at the beginning of this survey, does this article correctly describe what happened?”. Four questions were then asked about details in the video (sample item: “What colour shirt was the alleged offender wearing?”), (Answers: “White, Navy or I don’t remember”). The purpose of these questions was to calculate how many answers participants got right. These scores were then summed resulting in a final score between 0 to 3. The higher the number, the more answers they got correct. This was used to understand how the misinformation, depending on what article they had received, may have affected participants memory recall.

Following this, participants were asked to rate their confidence in their memory of the video on a scale from 1 (Not at all confident) to 5 (Extremely confident). Participants with a higher score were more confident in their memory of the event, while lower scores were considered less confident. Participants were then asked questions from each of the scales. Following this, participants were asked demographic questions including the year they were born, ethnicity and gender. Once all responses were collected, the data was downloaded and analysed using The Statistical Package for Social Science software (SPSS).

3.0 Results

3.1 Correlations

Based on percentiles, participants who overall, scored 40 and above are considered to have higher trust in police. Moderate trust in police is defined as participants who score between 30 and 40, and low trust in police is defined as participants who scored below 30. Overall, we found that 29% of participants reported high trust in police. Further, 49.4% of participants reported moderate trust in police and 21.6% of participants reported low trust in police.

Although we hypothesised that there would be a relationship between eyewitness memory accuracy and trust in police, no significant correlation was found. However, in Table 1 participants that reported higher trust in police scores were significantly more likely to also score higher on the Authoritarian Submission Scale. Therefore, participants who have higher trust in police are also more likely to submit to authority.

Table 1 shows that participants who were more confident in their memory recall of the video scored lower on the Authoritarian Submission Scale. There was a weak but significant correlation between confidence in memory and memory accuracy.

Table 1: Descriptive statistics and Pearson correlation coefficients for all variables.

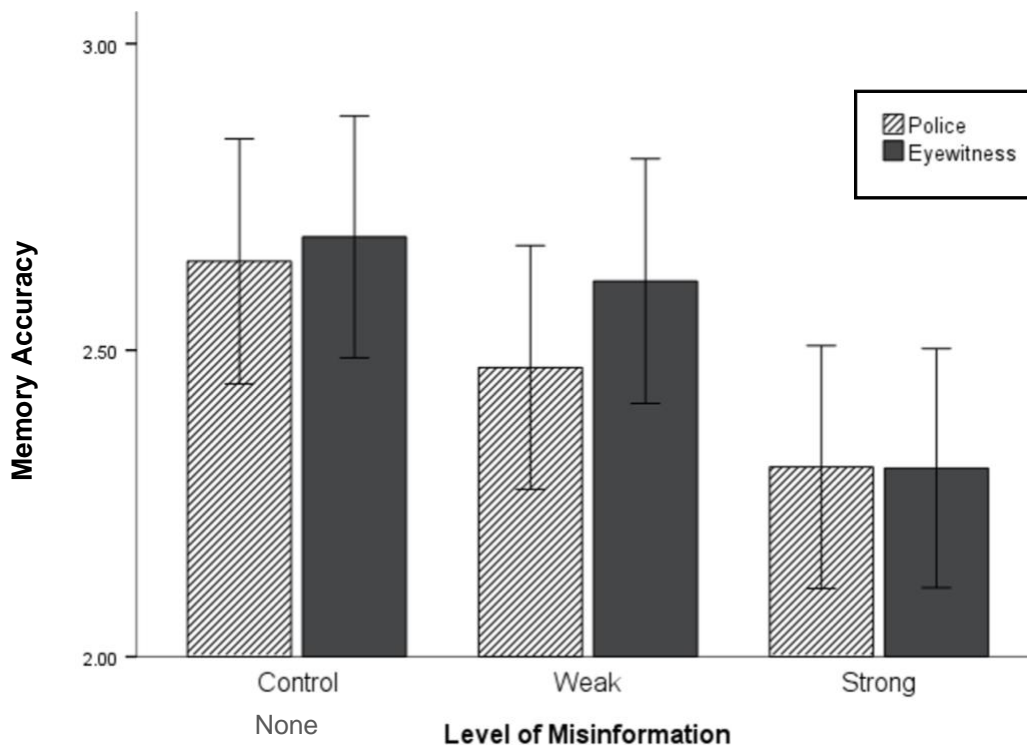
Variables		M	SD	1	2	3	4
1	Authoritarian Submission	18.05	4.34	--			
2	Trust in Police	80.57	15.05	.42***	--		
3	Confidence in Memory	2.96	0.92	.09**	.03	--	
4	Memory Accuracy	2.5	1.11	.06	.06	.24***	--

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

3.2 Misinformation, Source and Memory Accuracy

A 2 (police vs eyewitness) by 3 (true information, weak misinformation and strong misinformation) factorial ANOVA was conducted to examine the effect of source and level of misinformation on participants memory accuracy. As seen in Figure 1, we found a significant main effect of misinformation on memory accuracy, $F(2, 750) = 6.73, p < .01$, partial $\eta^2 = .01$. Tukey post-hoc tests revealed that participants reported better memory accuracy in the true information condition whereas, memory accuracy decreased in the weak misinformation condition and the strong misinformation conditions. It was expected that participants memory accuracy would decrease with stronger levels of misinformation. There was no effect for source (police vs eyewitness) on memory accuracy, $F(1, 750) = .54, p = .76$, partial $\eta^2 < .01$. There was also no significant interaction between misinformation and source $F(2, 750) = .27, p = .76$, partial $\eta^2 < .01$.

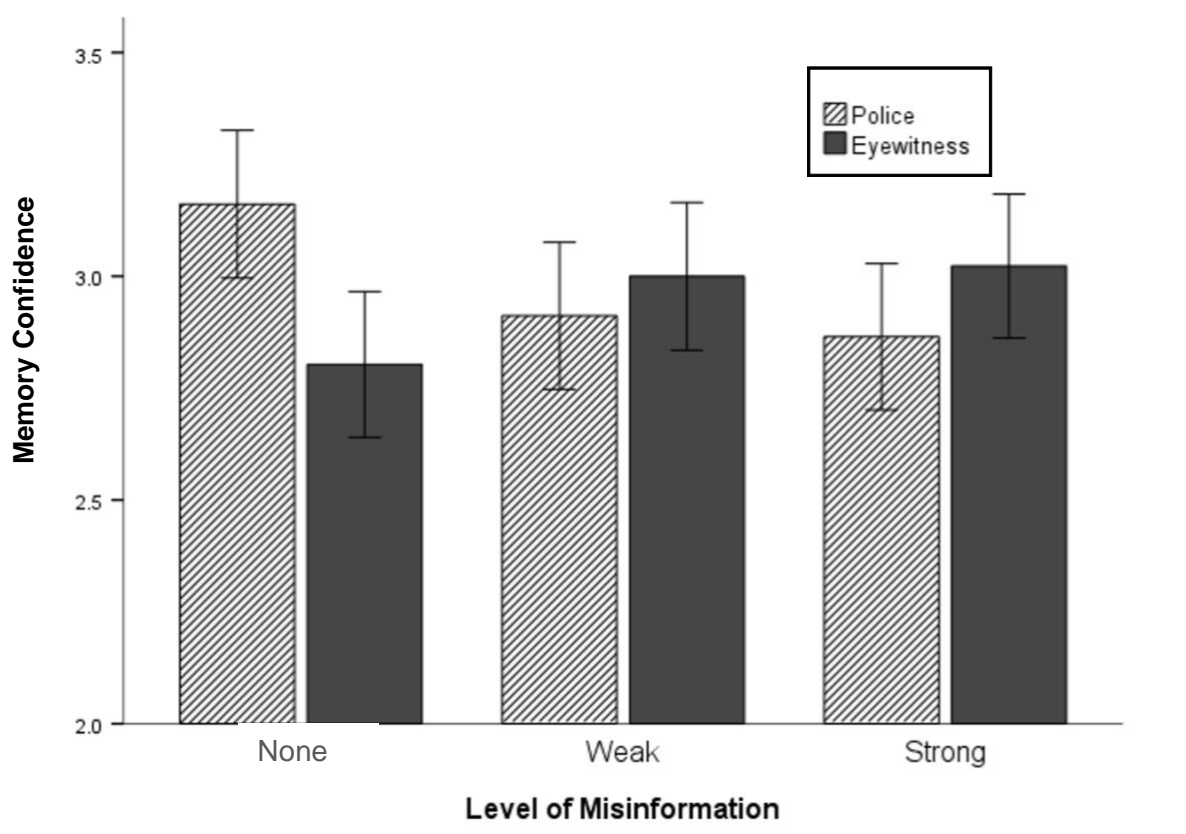
Figure 1: Effects of Source and Level of Misinformation on Memory Accuracy. Error bars ± 2 standard error.



3.3 Misinformation, Source and Confidence in Memory

The same analysis was conducted to examine the effect of source and level of misinformation on participants confidence in memory. There was no significant main effect for source on participants confidence in their memory, $F(1, 750) = .31, p = .57$, partial $\eta^2 < .01$. There was also no significant main effect for misinformation on participants confidence, $F(2, 750) = .11, p = .89$, partial $\eta^2 < .01$, however, we found a significant interaction between misinformation and source, $F(2, 750) = 5.80, p < .01$, partial $\eta^2 = .01$. As displayed in Figure 2, a simple effects analysis found that participants were more confident in their memory in the police, true information condition compared to the eyewitness true information condition. This effect disappeared in the weak ($p = .45$) and strong ($p = .17$) misinformation conditions.

Figure 2: Effects of Source and Level of Misinformation on Memory Confidence. Error bars +/- 2 standard error.



3.4 Trust in Police on Misinformation, Source and Memory Accuracy

A moderation analysis including source and misinformation as categorical predictors, a centred trust in police variable as a continuous predictor, and memory accuracy as the outcome variable was conducted to examine if trust in police moderated the relationship between memory accuracy, misinformation and source. All interactions involving trust in police were non-significant ($ps > .93$). Trust in police does not moderate the effect of source and misinformation on memory accuracy. Participants level of trust in police did not affect their memory accuracy when presented with misinformation from an eyewitness or police source.

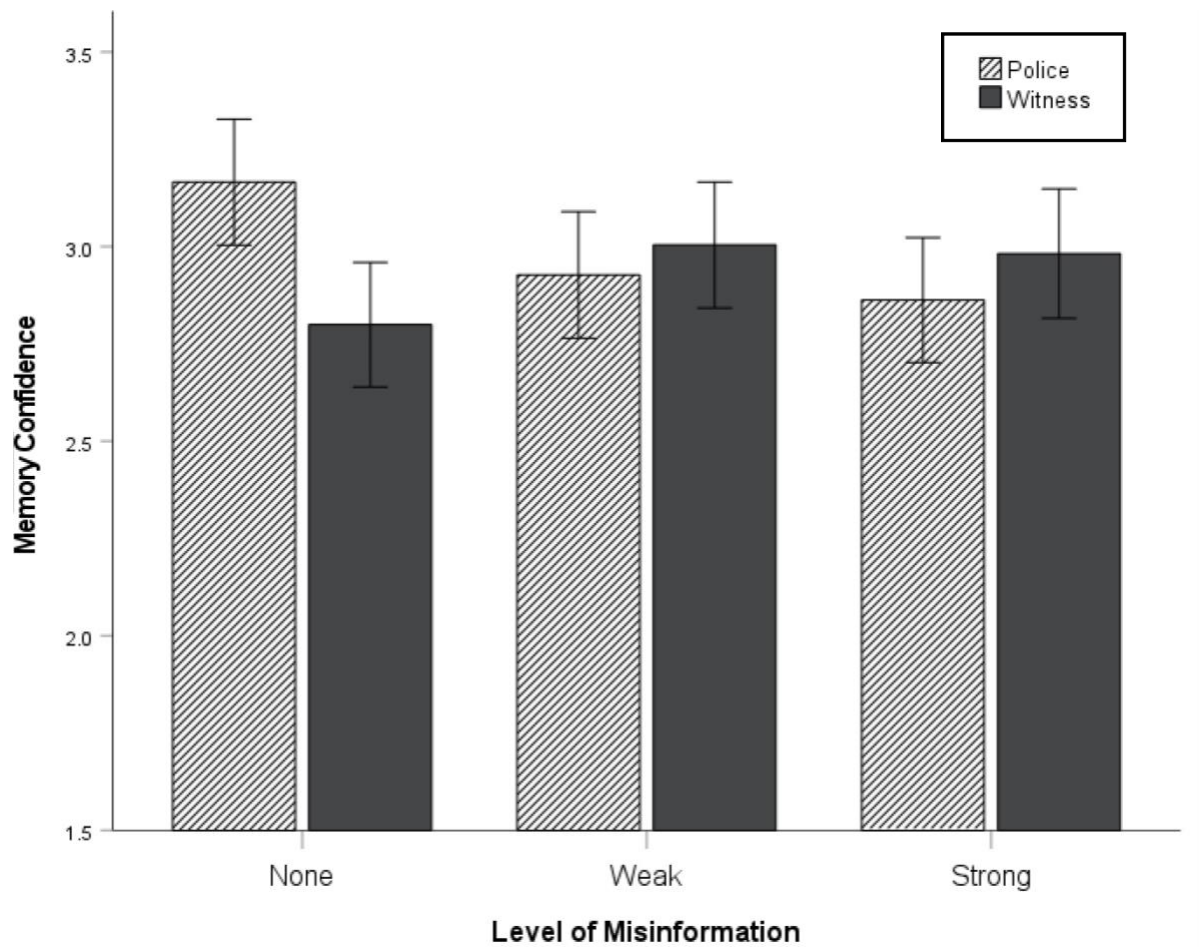
3.5 Trust in Police on Misinformation, Source and Confidence in Memory

A moderation analysis including source and misinformation as categorical predictors, a centred trust in police variable as a continuous predictor, and memory confidence as the outcome variable was conducted to examine if trust in police moderated the relationship between confidence in memory recall, misinformation and source. We hypothesised that participants with higher trust in police would be more confident in any police condition. We found a significant interaction between source, misinformation and trust in police $F(2, 744) = 3.38, p = .03$. Participants who had higher trust in police, were more likely to have increased memory confidence in the police, true information condition. All other two-way interactions involving the police motivations variable were non-significant ($p > .74$).

As seen in Figure 3, a simple effects analysis revealed that participants were more confident in their memory in the police true information condition ($M = 3.16, p = .04$) compared to the eyewitness, true information condition ($M = 2.8$). We also found the opposite in the strong misinformation condition as participants confidence increased with an eyewitness source ($M = 2.98, p < .01$) compared to a police source ($M = 2.86$).

After splitting the median of the trust in police variable into high and low, we found a significant interaction between source and misinformation on the confidence of memory in the high trust in police group, $F(2, 381) = 6.3, p < .01$. Participants who believe that police are motivated to help people, were more likely to report higher confidence in memory in the police, strong information condition. We did not find any significant interactions between source and misinformation on confidence in memory recall in the low trust in police condition ($p > .05$).

Figure 3: Moderation Analysis between Trust in Police on Misinformation, Source and Confidence in Memory for High Trust Participants. Error bars +/- 2 standard error.



3.6 Authoritarian Submission on Misinformation, Source and Memory Accuracy

We then analysed a centred authoritarian submission variable to understand if this moderated the effects of source and misinformation on memory accuracy. All interactions involving authoritarian submission were non-significant ($ps > .09$). Authoritarian submission does not moderate the effects of source and misinformation on memory accuracy. Participants who are more likely to submit to authority, such as police, were not negatively affected in their memory scores when presented with misinformation by an eyewitness or police source.

3.7 Authoritarian Submission on Misinformation, Source and Confidence in Memory

Furthermore, we looked into a centred authoritarian submission variable to understand if this moderated the effects of source and misinformation on confidence in memory recall. All interactions involving the authoritarian submission variable were non-significant ($ps > .13$). Authoritarian submission does not moderate the effects of source and misinformation on confidence in memory. Participants confidence in their memory was not affected by authoritarian submission when presented with misinformation from an eyewitness or police source.

3.8 Ethnicity and Trust in Police

As mentioned in the introduction, different ethnic communities have varied experiences with the police which could result in varied perceptions of the police overall. Therefore, we also conducted an independent samples t-test to compare ethnicity on trust in police. We decided to only compare European and Māori/Pasifika as these were the two largest ethnic groups when combined in our study. Also, in 2018, there were 70.2% European people and 24.6% Māori and Pasifika people in New Zealand (Statistics New Zealand, 2018). Therefore, we compared the two largest ethnic populations in New Zealand. We divided ethnicity into two groups, Māori and Pasifika were combined as another group. We combined Māori and Pasifika as one group because these populations may experience the similar negative experiences with police such as discrimination by being unfairly targeted by police (Panditharante et al., 2021). While, NZ European and European were also combined as one group based on the reasoning that these populations might have similar experiences with police, potentially more positive (Panditharante et al., 2021).

As seen in Table 2, European participants scored significantly higher trust in police scores compared to Māori and Pasifika participants. We also found that European participants scored significantly higher on the Authoritarian Submission Scale compared to Māori and Pasifika participants. There was no significant difference in memory accuracy when comparing European and Māori/Pasifika participants. There was also no significant difference in confidence in memory after comparing European and Māori/Pasifika participants.

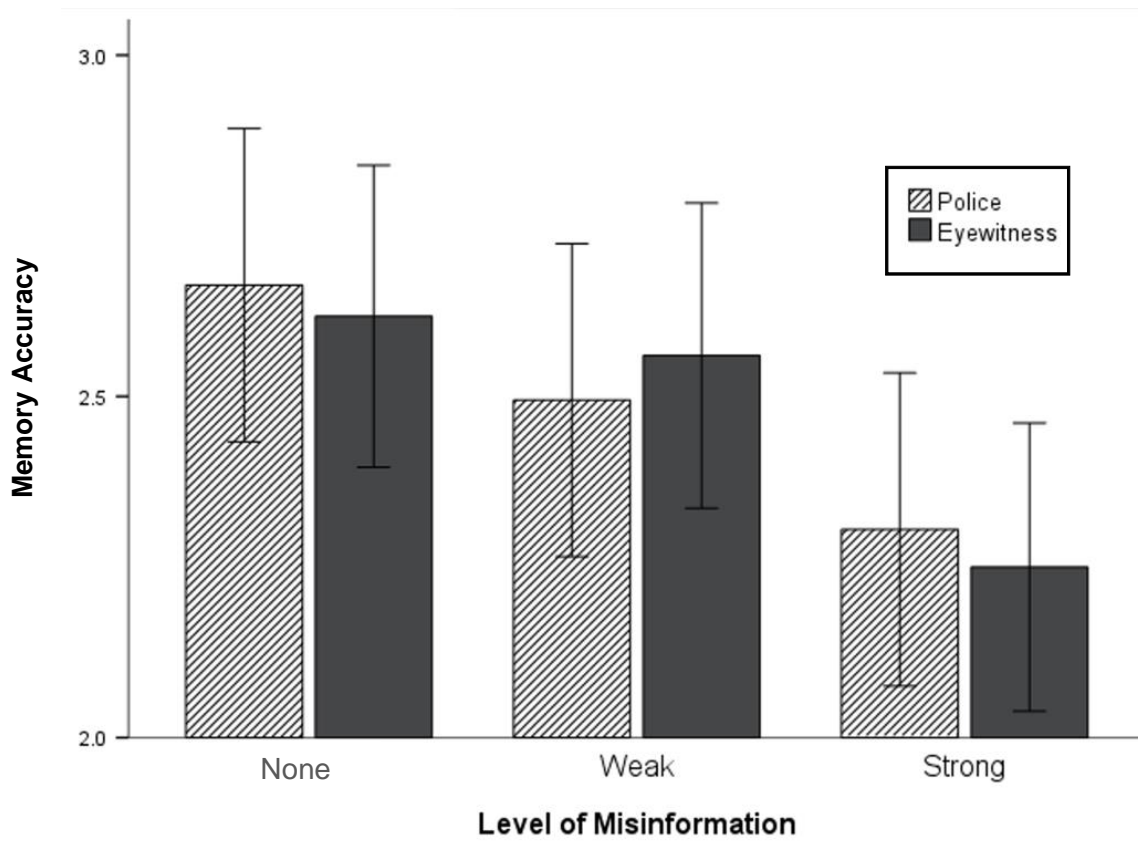
Table 2: Descriptive statistics and independent samples t-test results by ethnicity

	European M(SD)	Maori/Pasifika M(SD)	<i>t</i>	<i>p</i>	<i>d</i>
Trust in Police	81.75 (14.83)	75.41 (14.95)	3.40	<.01	.35
Authoritarian Submission	18.27 (4.33)	16.81 (3.95)	3.17	<.01	.35
Memory Accuracy	2.47 (1.12)	2.63 (1.04)	-1.38	.16	.15
Confidence	2.97 (2.91)	2.91 (0.09)	0.56	.57	.06

3.9 Misinformation, Source and Memory Accuracy by Ethnicity

We also examined the effect of ethnicity on memory accuracy, source and misinformation. This was conducted as the same 2 x 3 ANOVA, however, the output was split into the same ethnic groups as our independent samples t-test. We only found significant results for the European group, not the Maori/Pasifika group. In the European group, there was a significant main effect for misinformation on memory accuracy, $F(2, 593) = 5.57$, $p < .01$, partial $\eta^2 = .01$. As displayed in Figure 4, a Tukey post-hoc tests revealed that participants had better memory accuracy in the true information condition ($M = 2.64$) compared to the weak ($M = 2.52$) and strong ($M = 2.27$) conditions. There was a significant difference between the weak and strong misinformation conditions, with European participants scoring higher in the weak condition ($p = .02$). The remaining interactions for ethnicity misinformation and source, and misinformation, source and memory accuracy were non-significant ($p > .83$). All interactions for the Māori and Pasifika group were also non-significant ($p > .53$).

Figure 4: Effects of source and level of misinformation on memory accuracy for Europeans.
Error bars \pm 2 standard error.



4.0 Discussion

In this study, we examined how source and level of misinformation could influence eyewitness memory accuracy and confidence in memory. We also analysed whether this relationship is moderated by trust in police and authoritarian submission. As results indicated, participants were had better memory accuracy in the true information condition. Source did not have an effect on memory accuracy. Our prediction that regardless of the source, participants would be more confident in their memory when presented with true information, was also supported. All other hypotheses were not supported by our findings.

4.1.1 Trust in Police

Generally, New Zealand has high trust in police with 78.4% of respondents in this study considered to have moderate to high trust in police. We hypothesised that participants with higher trust in police would be more likely to accept the misinformation from a police source rather than an eyewitness, therefore, persuaded by the misinformation. We found evidence to support the misinformation effect. Participants were more likely to have better memory accuracy when presented with true information while their memory accuracy decreased when presented with misleading information. However, we found no evidence to suggest that trust in police affects whether or not participants accept misinformation from an eyewitness or a police source. Trust in police does not moderate the relationship between misinformation, source and memory accuracy.

One explanation for our lack of significant findings regarding trust in police could be due to the high level of trust in police within New Zealand. As well over half of our participants reported high trust in police, this may have driven our results.

Communities and neighbourhoods with overall lower socioeconomic status are more likely to be patrolled more regularly by police. Neighbourhoods that are more regularly patrolled by police are often associated with lower trust or confidence in the police (Panditharatne et al., 2018). Therefore, as our survey was online and individuals in lower socioeconomic communities may have restricted access to technology such as a computer and the internet (Panditharatne et al., 2018), it is likely we haven't reached a population of people in New Zealand who may hold lower trust in police. Therefore, we may not have gathered a full perspective of the level of trust in police within New Zealand. It is also possible that the

participants who have negative views of the police are not likely to participate in a survey that was advertised to be about the police (Panditharante et al., 2021).

4.1.2 Trust in Police on Confidence in Memory

Further, we expected participants with higher trust in police to be more confident in their memory when presented with a police source. We also expected that regardless of the source, participants would be more confident in their memory when presented with true information. We found that participants were more confident in their memory when presented with true information by a police source than by a civilian eyewitness. This may have occurred because participants were presented with information that matched the storyline of the video, so their confidence increased. We then saw a decrease in confidence when weak misleading information was presented. Confidence continued to decrease the stronger the misleading information was.

We also found that participants with higher trust in police were more likely to have higher memory confidence when presented with true information by a police source. This confidence decreased when presented with true information by an eyewitness. We then saw the opposite when presented with strong misleading information, confidence slightly increased with an eyewitness source and decreased with a police source. This could suggest that those with higher trust in police are more likely to be confident in their answers with a police source as they view them as more credible than an eyewitness. However, when there is strong misleading information, confidence may increase with an eyewitness because the other eyewitness was at the scene while the police were not, so the eyewitness potentially knows more. Police may be perceived to have more expertise in relation to crime scenes than a civilian eyewitness. Therefore, source credibility and their expertise may have overridden their beliefs when it came to information presented to them about a crime. Guillory and Geraci (2013) suggest that it is possible, depending on the context, that people may rely on the expertise of a source when deciding whether or not to accept the information they are presenting. For example, in the medical field, people would be more likely to accept information from a doctor rather than a patient in the hospital or someone who had gone through the same medical experience. The same concept can be applied here. Participants may have believed that the police are a more credible source and have more expertise in relation to solving crime than an

eyewitness, therefore, their confidence increased when presented with information from the police, rather than an eyewitness.

4.1.3 Authoritarian Submission and Gender

We found no evidence to suggest that authoritarian submission has any effect on memory accuracy or confidence in memory. Authoritarian submission does not appear to be a factor that influences participants level of trust in police in this study.

We initially did include gender in our analyses, however, we did not find anything of importance so we decided to remove this from our report.

4.1.4 Ethnicity

Finally, we found that the European group had higher trust in police than the Māori/Pasifika group, who had lower trust in police. We found no significant difference in memory accuracy or memory confidence between the European and Māori/Pasifika groups. However, memory accuracy was higher for Māori/Pasifika when compared to that of the European participants. This suggests that Māori/Pasifika are less likely to accept misinformation as true. As we previously established, Māori and Pasifika are more likely to report negative experiences with the police (Panditharante et al., 2021; Tauri, 2009). This could explain why we found slightly lower trust in police, however, to expand upon this, it is important to target future research toward these populations to gather a better understanding of the true level of trust Māori and Pasifika have for the New Zealand Police and to expand upon these findings.

4. 2 Implications

As we found evidence for the misinformation effect, this could be applied to a real-world context of police taking a witness statement. Some studies have found that police can often interrupt the witnesses during statements or excessively use closed or leading questions such as bait questioning (Luke et al., 2017). Bait questioning is sometimes used by police where hypothetical evidence is brought up during interviews to gather an answer. These techniques have often been shown to mislead eyewitnesses and can increase the likelihood of the misinformation effect occurring (Fisher, 1995; Luke et al., 2017; Wright & Alison, 2004). The

police must be made aware of this phenomenon so eyewitnesses are at minimal risk of misinformation acceptance and police aren't at risk of reporting false information. Further examination could expand on these previous studies and conduct research into New Zealand Police interviewing practises and whether eyewitnesses are exposed to misleading information during the process.

Although our research was directed toward trust in police, our findings pointed us more toward confidence in memory where we found that participants grew less confident in their memory when misleading information was provided. This was expected because people may begin to doubt their memory when presented with an article that had almost entirely false information about the video, compared to true information which would just confirm that what the participant saw was true.

Previous research identified that people who reported lower confidence in memory were more susceptible to accepting misleading information as they tend to rely on external sources to back up their memory. While those who had higher confidence in their memory are less likely to accept misinformation because they are confident that they remember what they witnessed (Gudjonsson & MacKeith, 1982). As we found a relationship between misinformation and confidence among people who have higher trust in police, these findings could have important implications in a realistic context. In a courtroom, if an eyewitness appears confident in their memory, this may persuade the jury or judge to believe their statement as true, even though their memory may be inaccurate. This could have serious implications in the justice system resulting in eyewitness misidentification and incorrect sentencing (Deffenbacher, 1980). Therefore, confidence in memory should not be an indication that the eyewitness' memory is accurate.

4.3 Strengths, Limitations and Directions for Future Research

The results from this study can be used to further develop knowledge surrounding trust in police and how this may affect eyewitness memory. Please note that it is recommended that this study is replicated and the results are re-tested before we can correctly assume any real-world implications.

One strength is that we used an experimental approach to our research. This experimental approach gives the researcher more control and allowed us to isolate or combine different variables to explore more results. It also allows the researcher more control over the

variables which may have allowed us to draw cause and effect conclusions. Another strength of this research is the large sample size with a good representation of Māori and Pasifika participants (13.3%) in the sample. In comparison to our national population, the estimated Māori population is 17.1% (Statistics New Zealand, 2021), while the Pacific population is 7.4% (Ministry of Health, 2014).

One limitation is that we didn't conduct any pilot testing or manipulation checks. Manipulation failure could have been one of the reasons why we found no significant results with trust in police. Participants may not have comprehended the questions. Our source or misinformation manipulations may not have been strong enough, our conditions may have been too obvious. By conducting manipulation checks, we could have concluded that the participants did comprehend the statements and questions in our survey which could have allowed us to draw more accurate conclusions (Hoewe, 2017). Further, by pilot testing our survey, we could have minimised the limitations we encountered. This could have also helped us to change different aspects of our survey, such as the mobile phone issues, as mentioned below, before we began recruitment. Pilot testing is highly recommended to future researchers.

There are several methodological issues with this research. Although it could be considered a strength that our questions were forced as it can eliminate the possibility of missing data, this can also be a limitation as participants are forced to select an answer which they may not agree with, creating acquiescence bias (Ray, 1990). Forced questions could also encourage participants to click out of the survey if they aren't comfortable with answering. Thus, creating a high dropout rate is also something we found to be an issue.

Another issue we found was the use of Facebook as a recruitment platform. We ran into several issues with this method. Facebook has limited the number of pages you can join each day, and also the number of times you can post in one day, which slowed the recruitment process down. This method of recruitment also limits the majority of participants to those who are online at the time and to those that use Facebook. We also had several participants inform us that parts of the survey did not work on their mobile phones. The video and Fruit Flip game did not load properly for some users which prevented us from recruiting more participants.

In an attempt to simulate a real-world time delay, we included the Fruit Flip filler task for three minutes as a distraction. However, in the real world, the New Zealand Police's average response time to emergency events in 2020 was 7-8 minutes in urban areas and 11-13 minutes in rural areas (New Zealand Police, 2020). Zaragoza and Koshmider (1989) suggested that

participants could begin to believe the misinformation after a long time delay. It is possible that as the time delay in our study was short, the participants still had the video details in mind so when presented with misinformation, their memory was not as affected than if the time delay were longer. It is also possible that the misinformation in this study, paired with the short time delay was too obvious. Therefore, it is recommended that in future studies, this research is replicated with a longer time delay.

On that note, the video we selected was set in America, however, this research was conducted in New Zealand. There are several differences between these two countries, however, the most noticeable in the video is the direction the cars are driving. As the cars are driving on the right side of the road, when asked “Which way did the getaway car turn?”, this could potentially confuse participants since cars drive on the left in New Zealand. This may have negatively impacted the participants memory. Participants may have intuitively answered left due to the direction of our roads, even though they saw the car go right.

Following this, as we found a higher level of trust in police in a New Zealand sample, it may be interesting to conduct this study with an overseas sample, for example, from a non-western perspective or a country where trust in police is lower. Eastern and Western countries have different perceptions of authority. Authority in eastern countries is often considered to be a hierarchy, while in Western countries they have a more egalitarian approach (Staubli, 2017). Results from Staubli (2017) have shown that in countries with lower trust in police, there is also lower trust in the government. They also found that overall, Eastern countries seemed to report lower trust in police than western countries. Also, Wu and Sun (2009), found that Chinese attitudes toward police were affected by perceptions of the government, satisfaction with public safety, quality of life and government corruption. There are differences in government styles in Eastern and Western countries, for example, China is considered a communist country, whereas New Zealand is a democracy (Staubli, 2017). Therefore, as perceptions of government could affect attitudes or trust toward police, we recommend testing our prediction that trust in police affects eyewitness memory in an Eastern setting to see if different results are found.

Our sample is also not representative of the wider New Zealand population. Our participants are also predominantly female. It has also mainly targeted Facebook users which limits our sample to people who not only have to have a Facebook account but also those who have access to devices that are capable of viewing the video and opening Fruit Flip. Similarly,

participants had to have an internet connection to load the Fruit Flip game and the survey. Therefore, our population becomes very limited and is likely to target only people who can afford these items or have a higher socioeconomic status (Panditharatne et al., 2018). As mentioned earlier, it is likely we haven't reached a population of people in New Zealand who may hold lower trust in police. Therefore, it is recommended that future researchers use an alternative method of data collection such as utilising the electoral roll to get a more representative sample including a more equal ratio of male to female.

There is also low ecological validity in this study. Firstly, participants know they are completing a memory task during the survey. The environment that participants are in is completely different from a real-world context as they can prepare to complete the survey. However, in the real world, people will not be aware that they are going to be witnesses to a crime. Further, people may not pay attention to their surroundings, while in our study, they may focus more on the details in the video as they may know what to expect. Therefore, they will not be prepared and may not be able to accurately recall specific details about the event. One approach we could have used to increase validity and to control extraneous variables like exposure times could be conducting this research in a lab setting. For example, participants could be seated in a lab with confederates under the impression that they are participating in research on a different topic. During a presentation, the researcher walks out of the room and a thief walks in and steals the researcher's bag. Researchers can then control the time in which participants are tested on their memory (Chae, 2010). We did not conduct this research in a lab setting due to the limited time frame of an honours dissertation. It is recommended that future researchers trial this method to investigate whether results are influenced by these different environments.

Finally, one confounding variable which we discuss, but did not analyse, is expertise. Although expertise can be combined with source credibility, it would be interesting to investigate this topic further. It is possible that participants' answers were influenced because they believe one source to have more expertise than another in a specific context (Guillory & Geraci, 2013). Therefore, it is possible that although participants may have had lower trust in police, they may have considered police to have more expertise in the context of a crime scene. Thus, they were more likely to be more confident or score more accurately in the police condition.

5.0 Conclusion

There have been several studies on the misinformation effect, however, trust in police and eyewitness memory, to our knowledge, is limited in current literature. This study has made a valid attempt at addressing the gap in the literature that specifically analyses trust in police and eyewitness memory. We found no evidence to support our original hypothesis that people with higher trust in police would be negatively affected in their memory by misinformation. However, we did find evidence to support and extend the literature on the misinformation effect. We also found that trust in police was associated with confidence in memory. Due to the limitations of this study, this highlights an avenue for future research which could address our limitations in the hopes of expanding our knowledge on trust in police and eyewitness memory.

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Appendix A: Ethics Approval

2 September 2021
Jay Wood
Faculty of Culture and Society

Dear Jay

Re Ethics Application: **21/324 Who's lie is it anyway? Eyewitness Memory, Misinformation Effect and Trust in Police.**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until .

Non-Standard Conditions of Approval

1. On the advert/Information Sheet can you add the words 'or supervise' after 'as a lecturer'.

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTEC before commencing your study.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.
8. AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through <http://www.aut.ac.nz/research/researchethics>

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat

Auckland University of Technology Ethics Committee

Cc: Jemmahopkins130@gmail.com

Appendix B: Participant Information Sheet

Date Information Sheet Produced:

20 August 2021

Project Title:

Public Perceptions of Police and Eyewitness Memory in New Zealand.

Hello, I am a student at Auckland University of Technology completing my Honours in Psychology. I am currently conducting research into public perceptions of the police and memory as part of my research. Taking part in this survey will contribute to gaining my Honours degree. If you are aged 16 or older, I am inviting you to take part and would greatly appreciate your contribution to my research. If you have a spare moment, please fill out the survey below, it should take no longer than 20 minutes to complete. If you happen to know anyone who may also be interested in participating, please pass this survey link onto them. Choosing to participate in this research is completely voluntary and will neither advantage or disadvantage you. **If you are currently a student at AUT with Jay Wood or Erik Landhuis as a lecturer or supervisor, please do not complete this survey.**

What is the purpose of this research?

Police heavily rely on the use of eyewitnesses to investigate a crime. Police also require strong relationships with communities to effectively carry out their duty to maintain public safety and to fulfil their business aim of being the safest country. Therefore, the purpose of this study is to understand the relationship between public trust in police, memory and source credibility. The findings of this research may be used for academic publications and presentations.

How was I identified and why am I being invited to participate in this research?

Participants for this research have been recruited through Facebook community pages. Posts have been made in various community pages around New Zealand inviting people to take part. In order to take part in the research, you must not be under the age of 16 nor be a current AUT student of Jay Wood or Erik Landhuis.

How do I agree to participate in this research?

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time before submitting your response. Once you have completed the questionnaire, removal of your data will not be possible as your response will not be able to be identified. **By submitting this questionnaire, you are consenting to participation in this research.**

What will happen in this research?

Participating in this research will involve first confirming that you are 16 years of older. Also, that you are not a current student of Jay Wood or Erik Landhuis. After meeting these requirements, you will be asked some

questions about your perceptions and opinions of police and the law. The data that is collected in this research will only be used for the purpose of this research project.

What are the discomforts and risks?

The risks for taking part in this research are minimal. You will not be exposed to anything potentially harmful or uncomfortable beyond what can be expected to be encountered in the normal course of their daily lives. If at any point during the data collection method you become uncomfortable with any questions asked you are free to withdraw from the study, and no explanation for your withdrawal will be sought.

What are the benefits?

Building trust with communities is a fundamental aspect of successful policing. By understanding the level of trust the New Zealand public has in our police force, this can assist the police in interpreting the general public's view on their operations and consider improvements which could be made to increase the safety of our communities. This research will also contribute to gaining my Honours qualification.

How will my privacy be protected?

All participants recruited will remain anonymous.

What are the costs of participating in this research?

This research is estimated to take no longer than 20 minutes of the participants time to complete.

What opportunity do I have to consider this invitation?

Data collection will begin on the 15th of September 2021 and close on the 8th of October 2021.

Will I receive feedback on the results of this research?

A summary of this research will be posted at this link by the 21st of June 2022.

https://docs.google.com/document/d/187uHyCRKX8hqB25ALH5Fux_V7rVPhTLU9v9b2xm6HhQ/edit

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor,

Jay Wood, jay.wood@aut.ac.nz, 921 9999 ext 8506.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTECH, ethics@aut.ac.nz, (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Jemma Hopkins, rhv7652@aut.ac.nz

Project Supervisor Contact Details:

Jay Wood, jay.wood@aut.ac.nz, 921 9999 ext 8506.

Approved by the Auckland University of Technology Ethics Committee on *2nd of September 2021*, AUTECH Reference number *21/324*.

Appendix C: Survey Questions

Q1 Are you aged 16 or older?

☐ Yes (1)

☐ No (2)

Q2 Are you a current AUT student of Jay Wood Or Erik Landhuis?

☐ Yes (1)

☐ No (2)

Q3 Please see below for the brief information sheet. You are encouraged to download the full information sheet on this link: [Information sheet](#)

☐

By ticking this box, I have understood this information and I consent to participate in this research. (1)

Q4 Please watch the short video (44s) on the next page. If you are on a mobile phone, **please rotate your screen now**.

Once you have viewed the full video, please move onto the next task. The red arrow to proceed will pop up once the video is over.

The video will automatically start playing once you proceed from this page, please be ready to view it.

Q6 You will now need to complete a memory game.

- The goal of this game is to match the fruit in pairs.

- To find the pairs, click on a card, this will show you a fruit. To find its match, click on another card.

- Continue until all fruits have matching pairs.

- You will have 3 minutes to complete as many levels as you can (it is not a race). Once your time is up, the game will finish and the next page will appear.

If you are on a mobile phone, please rotate your screen.

Q7

Please read the following article:

Q8 Thinking back to the video you watched at the beginning of this survey, does this article correctly describe what happened?

☐ Yes (1)

☐ No (2)

CONFIDENCE (Q9)

Q9 How confident are you that you remembered details of the video correctly?

- ☐ 1 - Not at all confident (1)
- ☐ 2 (2)
- ☐ 3 (3)
- ☐ 4 (4)
- ☐ 5 - Extremely confident (5)

MEMORY ACCURACY (Q 10 – 13)

Q10 What side of the car did the alleged offender steal the purse from?

- ☐ Left (1)
- ☐ Right (2)
- ☐ I don't remember (3)

Q11 What colour shirt was the alleged offender wearing?

- ☐ White (1)
- ☐ Navy (2)
- ☐ I don't remember (3)

Q12 What direction did the getaway car turn when leaving the petrol station?

- ☐ Left (1)
- ☐ Right (2)
- ☐ I don't remember (3)

Q13 How did the alleged offender steal the purse?

- ☐ Opened the car door (1)
- ☐ Reached through the car window (2)
- ☐ I don't remember (3)

AUTHORITARIAN SUBMISSION SCALE (Q 15 – 20)

Q14 Please rate the following statements on a scale between strongly disagree and strongly agree based on what you currently believe.

Q15 It's great that many young people today are prepared to defy authority.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q16 What our country needs most is discipline, with everyone following our leaders in unity.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q17 Students at high schools and at university must be encouraged to challenge, criticize and confront established authorities.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q18 Obedience and respect for authority are the most important virtues children should learn.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q19 Our country will be great if we show respect for authority and obey our leaders.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q20 People should be ready to protest against and challenge laws they don't agree with.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

TRUST IN POLICE SCALE (Q22 – 44)

Q21 Please rate the following statements on a scale between strongly disagree and strongly agree based on what you currently believe.

Q22 I fear being talked to by police.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q23 Police officers think they are better than everyone else.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q24 Police officers treat people as if they were lower than them.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q25 Police officers communicate well with people.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q26 Police officers typically overreact.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q27 If I were to interact with a police officer, I would be nervous.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q28 The presence of police makes me feel safe.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q29 Police officers are generally hostile.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q30 Police officers are generally kind.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q31 If I have a problem, I feel confident that the police can help me solve it.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q32 Please rate the following statements on a scale between strongly disagree and strongly agree based on what you currently believe.

Q33 I'm afraid to call the police when I need to.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q34 People should trust the police to help.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q35 Police officers consider all evidence they collect before making a decision.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q36 I feel that police officers are willing to listen to me when I come into contact with them.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q37 Law enforcement agencies are corrupt.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q38 Police officers fabricate evidence to make an arrest.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q39 I believe what police officers tell me.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q40 I can rely on police officers to ensure my safety.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q41 When interacting with police, I would do what they tell me to.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q42 Police are too slow to arrest people when they've done something wrong.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q43 I feel relieved to see police officers when I am out in the community.

- ☐ Strongly disagree (1)
- ☐ Disagree (2)
- ☐ Neutral (3)
- ☐ Agree (4)
- ☐ Strongly agree (5)

Q44 Police officers desire justice.

☐ Strongly disagree (1)

☐ Disagree (2)

☐ Neutral (3)

☐ Agree (4)

☐ Strongly agree (5)

Please select the year you were born

Please select (1)

▼ 1921 (1) ... 2005 (85)

Q45 Please indicate your gender:

☐ Male (1)

☐ Female (2)

☐ Other (3)

☐ Prefer not to say (4)

Q46 What ethnic group do you belong to?

☐ NZ European (1)

☐ European (2)

☐ Maori (3)

☐ Pasifika (4)

☐ Asian (5)

☐ Middle Eastern (6)

☐ Latin American (7)

☐ African (8)

☐ Other (9) _____

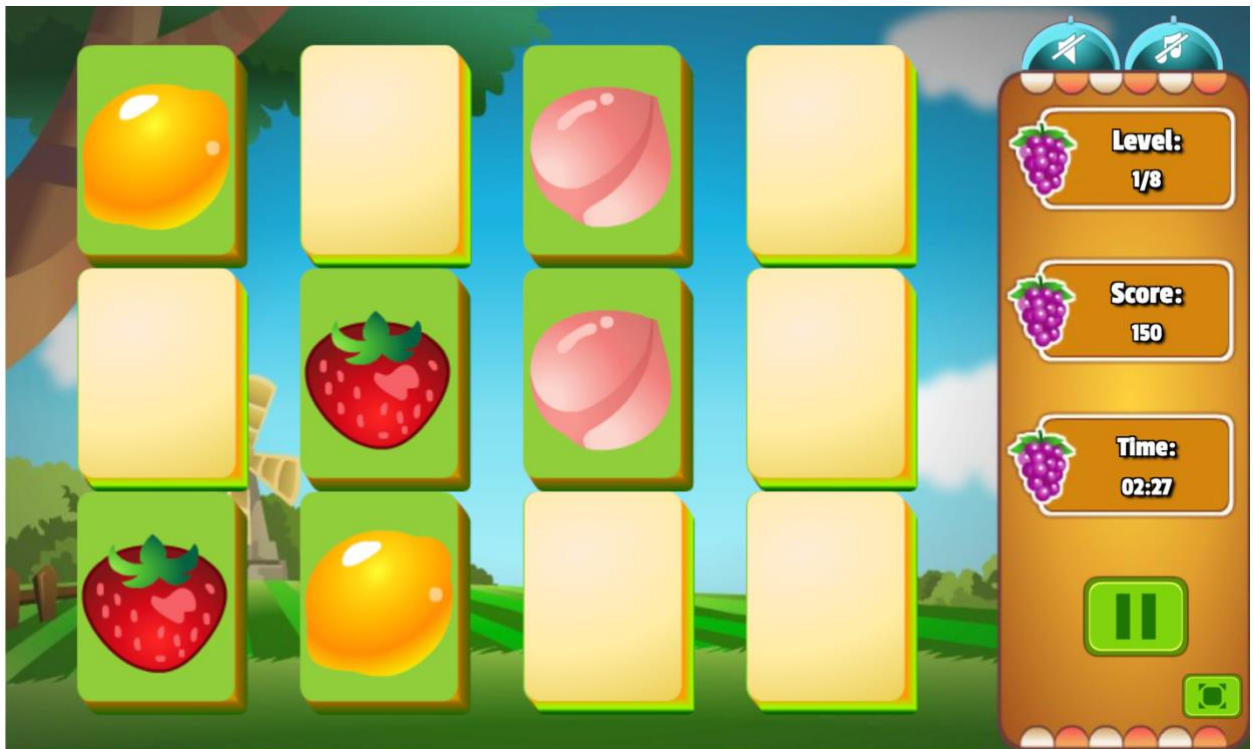
Appendix D: Video

<https://www.youtube.com/watch?v=kr-ytfWq6vI>



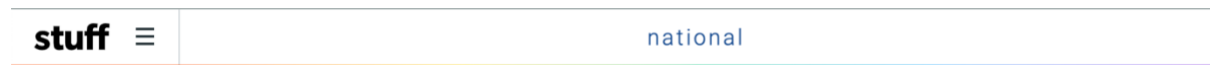
Appendix E: Fruit Flip Game

<https://www.mindgames.com/game/Fruit+Flip>



Appendix F: Articles

Eyewitness Strong Misinformation



Gas station bag snatchers: Eyewitnesses wanted

Jemma Hopkins | 11.07am, April 23 2021



More eyewitnesses are wanted in relation to a petrol station theft at a BP in Riccarton (Christchurch). The theft occurred at approximately 10.32am on the 23rd of April which involved a handbag being stolen from an **unlocked car in plain sight**.

One eyewitness reports that the alleged offender reached through the **left-side window** to steal the purse before running from the scene.

This was not a one man job. The eyewitness also reports the alleged offender's getaway car fled the scene by taking a right onto Vulcan Street before heading into the city centre. Enquiries are still ongoing and no arrests have yet been made in relation to this theft.

The on-foot offender is reported to be a Caucasian man wearing a **white t-shirt**, tan coloured cargo short and dark sunglasses.

Police are asking anyone who witnessed this event shown in the video to come forward with any information.

The public are asked to call the police on 105 and quote the file number 230412/1743 if anyone in the video is known to them.

Gas station bag snatchers: Eyewitnesses wanted

Jemma Hopkins | 11:07am, 23 April 2021



More eyewitnesses are wanted in relation to a petrol station theft at a BP in Riccarton (Christchurch). The theft occurred at approximately 10.32am on the 23rd of April which involved a handbag being stolen from the victims **open car window in plain sight**.

One eyewitness reports that the alleged offender reached through the **right-side window** to steal the purse before running from the scene.

This was not a one man job. The eyewitness also reports the alleged offender's getaway dark grey car fled the scene by **taking a left** onto Vulcan Street before heading into the city centre. Enquiries are still ongoing and no arrests have yet been made in relation to this theft.

The on-foot offender is reported to be a Caucasian man and wearing a navy t-shirt, tan coloured cargo pants and dark sunglasses.

Police are asking anyone who witnessed this event shown in the video to come forward with any information.

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One eyewitness reports that the alleged offender opened the unlocked right-side door to steal the purse before running from the scene.

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Police believe that the alleged offender reached through the **left-side window** to steal the purse before running from the scene.

This was not a one man job. A police spokesman also reports the alleged offender's dark grey getaway car fled the scene by taking a right onto Vulcan Street before heading into the city centre. Enquiries are still ongoing and no arrests have yet been made in relation to this theft.

The on-foot offender is reported to be a Caucasian man wearing a **white t-shirt, tan** coloured cargo shorts and dark sunglasses. Police are currently in the area to investigate further.

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