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The Effect of Mood Context on the Accuracy of Eyewitness Testimony

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THE EFFECT OF MOOD CONTEXT ON THE ACCURACY OF EYEWITNESS
TESTIMONY

by

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Submitted in Partial Fulfilment
of the requirements for the degree of
Bachelor of Arts
in
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Abstract

The purpose of this study was to determine if mood congruency at times of encoding and retrieval would affect the accuracy of eyewitness testimony in the presence of misinformation. Participants consisted of 41 undergraduate students from an introductory psychology course. Participants engaged in an autobiographical mood inducement technique, completed mood scales, and were observed and later tested on a visual stimulus presented. The results indicated that the mood inducement technique was not successful. It was found that all participants performed better in the presence of misinformation than no misinformation. This study therefore does not provide support for a mood contextual effect.

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Introduction

Many people believe that a person's memory involves a process that is just as reliable as a video recording, in that what is seen automatically gets stored in the memory, and that when one wants access to it, it will replay or be recalled in the exact same manner in which it was initially observed. In fact, studies of eyewitness testimony have revealed that eyewitness testimony can be significantly flawed (Woocher, 1977). It appears that certain factors present at the time of encoding and recalling may assist in increasing the accuracy and thereby the reliability of eyewitness testimony. One important factor is mood dependency and more specifically mood congruency, which occur when the mood at retrieval is identical to the mood at encoding (Robinson and Rollings, 2011). Studies have shown that mood congruency results in superior recall and recognition memory (Robinson and Rollings, 2011). The current study intended to determine if mood congruency makes one less susceptible to misinformation.

Research has been conducted for over 30 years to try to reveal the cause of the deficits that have arisen in eyewitness testimony. Studies have found that there are many variables that can affect the accuracy of eyewitness testimony. These variables have been divided into two categories. The first category has been defined as "system variables" which are variables that the criminal justice system has the ability to control (Wells and Olsen, 2003). System variables include lineup content, lineup instructions, and methods of testing. Due to findings from experimental research, the United States has actually adopted certain alterations to system variables as new standards in attempts to make processes such as identification lineups more valid and reliable. For example, Lindsay and Wells (1985) found that sequential presentations of lineups could reduce false

identifications of innocent suspects compared to simultaneous presentations. This finding has led police personnel to alter their lineup methods in the real world. Furthermore, approaching these variables in practice with an emphasis on mood dependency may enhance the reliability of eyewitness testimony. Police officers and various other members of the justice system can facilitate tactics to trigger the mood of the eyewitness that was experienced at the time of the witnessed event. These tactics may aid memory accuracy of recall.

Wells and Olsen (2003) have identified the second category as “estimator variables” and these include characteristics of the witness, characteristics of the witnessed events and characteristics of the testimony. They also reveal that factors such as age, gender, race, intelligence and personality traits can be confounding variables that affect the degree of accuracy of the recollections of the eyewitness. For example, Malpass and Kravitz (1969) found that black faces were more difficult to recognize than white faces and Wells (1978) found that within-race identifications are better than cross-race identifications. Wells and Olsen (2003) additionally have highlighted that other factors including the length of exposure to the culprit, lighting conditions, whether the culprit is in disguise, the distinctiveness of the culprit’s appearance and the presence of a weapon are particular characteristics of an event that have the ability to affect the eyewitness’ accuracy. An experiment by Buckhout and Eugenio (1990) illustrated that the presence of a weapon can cause a phenomenon known as “weapon focus” to occur. They have identified this phenomenon as a decreased ability to give an accurate description of the perpetrator. These variables therefore are used to either strengthen or weaken the credibility of the eyewitness. Furthermore, Wells and Olsen (2003) have found that the

certainty and confidence of an eyewitness, as well as the speed to respond, are potential characteristics that are indicators of one's accuracy of eyewitness testimony. Estimator variables are therefore not controlled by the criminal justice system, are innumerable and have an immediate impact on encoding memory and therefore reliability.

Looking at mood from a broader perspective, it is arguable that the mood of the eyewitness could be considered both an estimator variable and a system variable. Mood could fall within the estimator variable category as being a component of the characteristic of a witness. Considering that the word 'characteristic' is defined as a feature or quality belonging typically to a person serving to identify them, mood would fit within this concept (Oxford Dictionary, n.d). However at the same time, mood can also be considered a system variable as police officers can employ tactics that induce specific moods or affect. In summary, both estimator variables and system variables have been unveiled through research and have been found to significantly influence the testimony or statements and overall accuracy given by the eyewitness.

The study of eyewitness testimony has received much attention in covering aspects of mood and affect. A significant amount of attention has been directed to determining how the mood of the eyewitness may affect their memory for a witnessed event. Clifford and Scott (1978) evaluated how the level of stress and anxiety of the eyewitness could affect the degree of accuracy of the eyewitness' memory. They had participants view one of two films where one film had a physical assault and the other film contained no physical violence. The results revealed that the witnesses exposed to the film containing the violent incidents recalled less about the details within the film than did the witnesses to the non-violent film. As a result, the researchers speculated that

the presence of violence generated a degree of stress and anxiety, a negative mood affect. This study therefore revealed that high levels of stress and anxiety (negative mood) decrease the accuracy of the eyewitness testimony and recall. It is arguable that perhaps mood incongruency, a mismatch in the mood presence at the time of encoding and retrieval, was a factor negatively impacting the accuracy in this experiment. Subjects in this study experienced a mood invoked only during the encoding phase of their memory. The same mood they experienced during the witnessed event was not necessarily present or the same when they were later questioned about what they had seen. It may be the case that if the eyewitness' mood was identical at time of retrieval, that their memory of the event would have been enhanced. In contrast however, other research has revealed that higher levels of arousal can improve an eyewitness' accuracy. Yuille and Cutshall (1986) interviewed individuals who had witnessed real life shootings and this study found that the witness recall was very accurate, despite high levels of anxiety. It was found by Yuille and Cutshall (1986) that these individuals remained accurate 7 months later and were also unaffected by misleading questions. These results are similar to that of Christianson and Hubinette (1993) who interviewed individuals who had witnessed real life bank robberies. They found that people who had been subjected to the greatest level of anxiety had the most detailed and accurate memory for the stressful event. Similar to witnesses in the Yuille and Cutshall (1986) study, the accuracy of the individuals' memories in this study was still high 15 months later after the event had taken place. Perhaps an explanation behind the participant's accuracy remaining for a number of months was due to the participant thinking back to the exact witnessed event which indirectly evoked the mood that they had experienced during the event. It may be that this

mood congruency played a role in maintaining their accuracy. However, it is important to note that there are significant differences in the studies conducted by Clifford and Scott (1978) compared to Yuille and Cutshall (1986) and Christianson and Hubinette (1993). The Clifford and Scott (1978) experiment was a laboratory experiment, while the latter two were naturalistic experiments. It is important to recognize that the creation of artificial settings during laboratory experiments can result in a lack of external validity (Berkowitz and Donnerstien, 1982). In this manner, Clifford and Scott (1978) may have exposed unlikely scenarios in impractical ways to the participants of their study. On the other hand, real life situations examined through naturalistic experiments result in ecological validity (Pepler and Craig, 1995). While Yuille and Cutshall (1986) and Christianson and Hubinette (1993) experiments were naturalistic, they were not controlled and were therefore unable to account for extraneous variables that may have impacted their participants.

Despite the innumerable factors that may hinder or benefit memory, such as mood, experimental research has revealed that certain techniques and strategies can be used to enhance memory. Studies have shown that memory can be enhanced if there is a reinstatement of context, meaning the same context present at learning is present at recalling. For example, Mead and Ball (2007) maintained or altered music key at times of encoding and retrieval while subjects were studying word lists. The results from this study revealed that participants who experienced a match in music keys at encoding and retrieval, recalled significantly more words than subjects who experienced a mismatch. Similarly Baker, Bezance, Zellaby and Aggleton (2004) found that chewing gum when initially learning and again at retrieval led to higher recall, compared to subjects who

chewed gum at learning and did not chew gum at retrieval. The same results were found by Keleman and Creeley (2003) with drinking coffee and Smith (1979) illustrated that even particular environments could serve as a context dependent factor. For example, Godden and Baddeley (1975) tested divers in two different environments, on land or underwater and found that when recall took place in the environment that participants had originally learned the words, there was a significant difference in the amount that was remembered.

The concept of a context dependency effect has been extended to include mood and affect. Eich (1995) has illustrated that there is evidence that events encoded in certain moods are better retrievable in the same mood. Eich, Macaulay and Ryan (1994) demonstrated that memory recall was higher when recall moods matched compared to when they did not match. Based on findings such as these, many police officers facilitate a type of interview referred to as a cognitive interview. One of the main components of this type of interview is the mental reinstatement of context (Dando, Wilcock and Milne, 2009). The purpose of this tactic is to try to enhance the recollection of particular events and in this regard would include reinstating the mood that was present at the time of the witnessed event.

To experimentally investigate if real world forgetting could be the result of a mismatch between mood at learning and mood at retrieval, Robinson and Rollings (2011) sought to determine whether mood dependency enhanced recall and recognition memory. In doing so, they explored whether exposure to a mild stressor could induce a mood dependency effect. To test their research question, moods were induced by two short movie clips, one film was a horror movie that was used to induce anxiety and the other

film was a documentary on steam trains that was used to induce a neutral mood state. To test if a mood dependency effect affected memory, Robinson and Rollings (2011) conducted a study with two independent variables, mood at the time of encoding (arousal vs. neutral) and mood at the time of retrieval (arousal vs. neutral). The moods in this study were either matched or mismatched at times of encoding and retrieval. Throughout the experiment, participants were exposed to a variety of symbols that they would later have to recall, as well as a variety of faces they would later have to indicate as recognized or not recognized. To validate the measure of mood induced by the movie clips, the Stress Arousal Checklist was used. The results from this scale revealed that those who were in a condition of arousal did in fact have higher levels of stress and anxiety than did those who were in the neutral condition. Participants' total accuracy was computed with the number of symbols accurately recalled in addition to the number of faces properly indicated as recognized or not recognized. The results indicate that participant recognition and recall were significantly higher for the participants who experienced the same mood at encoding and retrieval compared to those who experienced a mismatch in mood context. Therefore, the findings from this study provide support for a mood dependency effect in recognition and recall of visual stimuli.

In order to better understand how mood congruency may influence the susceptibility to misinformation, the effect of transient moods where misinformation is introduced needs to be considered. Forgas, Laham and Vargas (2005) examined whether transient moods could influence the susceptibility to misinformation. Forgas et al. (2005) exposed participants to both a negative event image and a positive event image. After exposure to both incidents participants were given subsequent tasks to engage in. Later in

the experiment, Forgas et al. (2005) had participants think of a memory that was either positive, negative or neutral. This task was implemented as a mood induction technique. To ensure that mood induction was successful, Forgas et al. (2005) had participants fill out a 7-point scale on mood, which revealed that participants who thought about a positive life event (“positive affect”) were in a significantly better mood while those that thought about a negative event (“negative affect”) were in a significantly worse mood than the participants who reflected on a neutral event. After this technique was used, Forgas et al. (2005) administered questionnaires to their participants. The questionnaires used in this experiment were between subjects; participants were either administered a direct questionnaire or administered a questionnaire containing misleading information. Forgas et al. (2005) measured participants’ accuracy based on correct responses made from the questionnaire. The results from Forgas et al. (2005) revealed that positive affect promoted the incorporation of misleading information while negative affect inhibited the incorporation of misleading information. The study conducted by Forgas et al. (2005) only examined the effects at the reprocessing stage of memory and therefore did not account for potential differences that may occur during the encoding and retrieval stages of memory. It is also noteworthy to mention that a study done by Porter, Bellhouse, McDougall, Ten Brinke and Wilson (2010) revealed the opposite of what Forgas et al. (2005) found. In Porter et al.’s (2010) experiment, they found that negative emotion increases the susceptibility in accepting misinformation. Porter et al. (2010) revealed that images that were negative in nature were linked with a greater susceptibility to false memories. Perhaps the acceptance of misinformation or the susceptibility to misinformation would have been decreased in these studies if participants experienced a

mood dependency contextual effect and therefore had the initial mood experienced reinstated.

Currently, the literature has shown that different moods affect memory by either enhancing it or weakening it. Studies also show that if an internal mood is the same at the time of encoding and at the time of retrieval, memory is superior. The studies by Forgas et al. (2005) and Portel et al. (2010) did not reinstate the internal mood at retrieval that was induced in their participants at encoding. While these experiments have shown that certain moods are more susceptible to misinformation than others, they do not account for the potential outcomes that a mood congruent context may have on the overall accuracy of eyewitness testimony. Furthermore, Robinson and Rollings (2011) demonstrated a mood contextual effect but their study did not consider the potential impact that the presence of misinformation might have. Therefore, the effect or influence of misinformation on a mood dependency effect in the literature is limited.

The Current Study

The present study sought to determine if mood context at the time of both the encoding period and retrieval period would affect the accuracy of the eyewitness' testimony by examining whether mood congruency had an effect on the susceptibility to misinformation. This study examined mood context in both positive conditions and neutral conditions at both encoding and retrieval. It further examined the effect that mood context had on the accuracy of memory when in the presence of misleading information. Based on previous findings that memory tends to be superior when moods are congruent (Robinson and Rollings, 2011), it was predicted that participants in the mood congruent conditions would be less prone to misinformation than participants in mood incongruent

conditions. Further, based on the findings of Forgas et al. (2005) that revealed participants in a positive mood were more likely to accept misinformation than those who were in a negative or neutral mood, it was predicted that participants in the neutral congruent conditions would be more accurate than those in a positive congruent condition. Overall, it was expected that mood congruent conditions whether positive or neutral would lead to more accurate recall compared to mood incongruent conditions and thereby be less susceptible to misinformation.

Method

Participants

The participants included in this study were 41 undergraduate students (28 women and 13 men) at Huron University College, a liberal arts college affiliated with the University of Western Ontario. All participants were recruited from a first-year Introductory to Psychology course through the online SONA research participant pool. Participants received a credit for their participation in this study. Participants' ages ranged from 18 to 41 years ($M = 19.37$, $SD = 4.55$).

Materials and Procedure

Participants signed up for this study through the online SONA research participant pool. Testing was done in a 15-seat psychology laboratory room at Huron University College. Each session was introduced as entailing a number of unrelated tasks, carried out over a half-hour period.

Participants were randomly assigned to either positive or neutral mood induction at encoding and either positive or neutral mood induction at retrieval. All participants were presented with a 7-page booklet in front of them on a desk. The first page had

participants indicate their age and gender. The following pages consisted of a set of descriptive tasks (mood inducements), mood scales, a filler task and a questionnaire. Based on pilot data ($N = 10$), the duration of each task in this experiment was set based on the average time taken to complete it. This consisted of a period of four and a half minutes for each descriptive task, one and a half minutes for the mood scales, four minutes for the filler task and four minutes for the questionnaire.

Depending on the mood condition that participants were randomly assigned to, either positive or neutral mood, the mood was induced before encoding by participating in an autobiographical descriptive task. Participants in the positive encoding condition were asked to reflect on a personal autobiographical memory that was happy for them (see Appendix I). For four and a half minutes, participants answered additional questions such as what the occasion was, how they felt, why it was so happy or positive and additionally, participants were asked to provide as many details about the occasion as they could. Participants in the neutral encoding condition were asked to reflect on their nightly routine by providing a description of what they do to prepare for bed, in what order their nightly routine is carried out, the last event carried out before bed, as well as any other additional details about this process (see Appendix II).

Immediately after this task was complete, participants were provided with the Positive and Negative Affect Schedule (PANAS; Watson, Clark and Tellegan, 1988) containing 20 words describing different feelings and emotions. This scale uses 10 positive items and 10 negative items that are mood-related, such as *Interested*, *Distracted*, or *Jittery*, and *Afraid*. Participants had one and a half minutes to indicate how they currently felt by rating such items on a 5-point rating scale, with 1 indicating feeling

this way “very slightly or not at all” and 5 indicating feeling this way “extremely”. The maximum score for both positive affect and negative affect in this scale is 50, with a higher score being indicative of higher feelings for either positive or negative affect. Positive and negative scores were summed and recorded after the experiment was conducted.

After completion of the PANAS scale, participants were told they were going to view a visual stimulus and were instructed to direct their attention to the overhead projector and white screen which displayed the visual stimulus for one minute in length. The visual stimulus was a scene of a complex car accident on a highway.

After seeing the visual stimulus participants engaged in a filler task, a word search, to control for potential ceiling effects, which would help control for high accuracy based on the recency of seeing the stimuli. Participants were told to try to find as many words as they could until further specified. This word search contained 23 neutral words related to musical instruments. The word search was made up of a 14-letter by 17-letter grid (238 letters total). The words to be identified were listed on the page. The number of words found was not scored.

After four minutes of partaking in the filler task, participants engaged in an additional four and a half minute descriptive task. During this task, specific moods were either reinstated (if in a congruent condition) or newly introduced (if in an incongruent condition). For the positive retrieval condition, participants were asked to reflect on the happiest day of their life (see Appendix III). Additionally they were asked questions such as, why this was the best day of their life, how they felt and to provide as many details about this day as they could. Those in the neutral retrieval condition were asked what

they eat for breakfast in addition to questions about how they prepare this food, what time they eat this meal, as well as any other additional details relating to it (see Appendix IV).

Immediately following this descriptive task, participants completed the same 20-item PANAS scale earlier presented in one and a half minutes and were asked to again, rank each item from one to five.

Upon completion, participants had four minutes to complete a questionnaire containing 14 questions regarding the stimuli previously presented (see Appendix V). The questionnaire within this study consisted of both true information as well as misleading (false) information. For each question, subjects answered by circling “yes” or “no”. Some of the questions included in the questionnaire were, “Was the smashed car on the road purple?” (true) and “Was there a fireman holding a fire hose?” (false).

After completing this questionnaire, participants were thanked for their involvement in this study and presented with a debriefing form outlining the exact nature behind the experiment.

Participants’ mood scores were then calculated and the number of correct answers from the questionnaire were tallied as the measure that determined the accuracy of the participant’s memory.

Results

All participants completed a PANAS scale in order to determine if the autobiographical mood inducement technique was successful. An independent t-test revealed that during encoding, those who were in the positive condition ($M = 29.00$, $SD = 9.78$) did not have significantly higher positive scores than those who were in the neutral condition ($M = 25.38$, $SD = 7.05$), $t(39) = 1.36$, $p > .05$, $d = .24$ and that negative

scores did not differ significantly between the positive condition ($M = 14.70, SD = 6.07$) and neutral condition ($M = 14.33, SD = 5.24$), $t(39) = .21, p > .05, d = .06$. An independent t-test revealed that during the retrieval phase, those who were in the positive condition ($M = 26.90, SD = 9.48$) did not have significantly higher positive scores than those who were in the neutral condition ($M = 22.86, SD = 8.19$), $t(39) = 1.46, p > .05, d = .46$ and that negative scores did not differ significantly between the positive condition ($M = 14.80, SD = 8.13$) and the neutral condition ($M = 13.38, SD = 3.34$), $t(39) = .74, p > .05, d = .23$.

A three way, mixed analysis of variance (ANOVA) on memory accuracy was conducted with encoding (positive, neutral) and retrieval (positive, neutral) as the between subjects factor and type of information (regular information, misinformation) as the within subjects factor. The results showed a significant main effect for information, $F(1, 37) = 5.84, p < .05$, partial $\eta^2 = .14$, with participants accuracy being higher on questions containing misinformation ($M = 5.17, SD = 1.07$) than on regular questions without misinformation ($M = 4.56, SD = .95$). No other significant effects or interactions were observed with all $ps > .05$.

Discussion

This study sought to determine whether the acceptance or susceptibility of misinformation was due to a mismatch in either positive or neutral moods experienced during encoding and retrieval phases of memory. The results from this experiment revealed that participants who were in a positive mood condition during encoding did not report significantly higher positive or negative scores than those who were in a neutral mood condition. Similarly, it was found that those who were in a positive mood condition

at retrieval also did not have significantly higher positive or negative scores than those in a neutral mood condition. These findings therefore indicated that the intended moods in this study were not successfully induced. The results also revealed that there was a significant main effect for type of information, by having found that participants were more accurate at answering questions correctly that contained misinformation than they were for questions without misinformation. This finding was contrary to the hypothesis, which had suggested that accuracy on misinformation would be higher for those only in the mood congruent conditions, but as indicated by the results, accuracy was highest on questions containing misinformation for participants across all mood conditions, congruent and incongruent.

A possible explanation as to why the participants were overall more accurate at correctly answering the questions containing misinformation could be examined by analyzing the findings of the Forgas et al (2005) study. In their study, they revealed that a negative mood resulted in the inhibition of incorporating misleading information while a positive mood enhanced the acceptance of such information. In the current study, since the mood induction was unsuccessful, the factor that may have driven the results could have been a mood that was generated from the visual stimulus that was presented. The visual stimulus used in this experiment consisted of a complex scene that featured a multi-vehicle car crash on a highway. This visual stimulus was therefore negative in nature and could have unintentionally caused subjects to experience a negative mood. Forgas et al. (2005) discussed different styles of information processing based on different moods, induced or experienced. They revealed that a positive mood generated a reliance on assimilative processing which consisted of an individual being dependent on

their existing knowledge and heuristics while negative moods encompassed accommodative processing which emphasized focus on the details that are present in the external world. From this, they concluded that negative moods generated individuals to deeply engage in processing, compared to positive moods where processing was less extensive. Participants in the current study could have been more accurate on the questions containing misinformation as the visual stimuli may have established a negative mood, which caused them to analyze the details of the image more extensively resulting in greater accuracy on the questions with misinformation.

While this explanation seems plausible, the negative scores summated do not support this explanation. It is possible that the PANAS scale itself was the issue. Although, the PANAS scale has been shown to be a reliable and valid measure in previous studies (Crawford and Henry, 2004), it may not have been reliable in the current study. The participants in Crawford and Henry's (2004) study were adults with a mean age of 42.90 years, while the participants in the current study had a mean age of 19.37 years. It is possible that the participants in the current study were not as engaged as the participants in the study conducted by Crawford and Henry (2004). In order for the scale to work optimally, a great degree of engagement, concentration and interest was required. It may have been that participants in the current study were only interested in receiving a credit for attending and partaking, but were not actively engaged. Additionally, participants were required to complete the PANAS scale on two separate occasions, which may have been redundant and onerous. Furthermore, the scale used presented states of mind that could have been difficult for younger people to identify due to their lack of life experience. For example, emotions or feelings such as distress, hostility, and

inspiration could have been difficult for subjects in the current study to interpret or quantify. All of the above factors could have contributed to the scale not being an accurate measure in this study.

The greatest flaw and limitation of this study resulted from the mood induction techniques not working effectively by not inducing the desired mood. The technique to induce mood in this experiment was an autobiographical mood inducement technique where participants self report on particular events. The same mood technique was facilitated by Forgas et al. (2005) and was successful in their study. The nature of the questions asked within the autobiographical mood induction technique were similar, however, the only obvious observation was the difference in time to induce the mood between the two studies varied. In the current study it was 4.5 minutes and in the Forgas et al. (2005) study it was 12 minutes. Arguably, the participants in the current study were not engaged or motivated.

The validity of eyewitness testimony in experimentally induced conditions has significant differences from those found in naturally occurring conditions. For example, the Clifford and Scott (1978) study found that high levels of anxiety resulted in less accurate memory recall, but Yuille and Cutshall (1986) and Christianson and Hubinette (1993) found that higher levels of anxiety actually resulted in higher memory recall. The first experiment was conducted in a laboratory, compared to the later two, which were naturalistic. The inconsistency between naturalistic and experimental studies could be linked or correlated with the strength of a memory trace. Forgas et al. (2005) argued that the strength of a memory trace influences what is remembered and can therefore determine the effects that misinformation may have on the accuracy of memory. The

rationality here was that a strong memory trace would resist misleading information and a weak memory trace would likely accept misinformation. It is possible that individuals who experience real life eyewitness events would likely have a stronger memory trace than those who experience simulated events in a laboratory. This explanation would effectively explain the findings of Yuille and Cutshall (1986) and Christianson and Hubinette (1993) wherein participants who experienced real life events were accurate months later and less susceptible to misinformation compared to participants in Clifford and Scott's (1978) experiment. These individuals had a stronger memory trace, as they were less susceptible to misinformation. From these findings, it appeared that superior memory for an event was a direct result of both the strength of the memory trace and the emotion that was experienced during the event. In the current study, it appeared that participants had a strong memory trace to questions containing misinformation. It is arguable that had participants experienced authentic (non-laboratory induced) emotions, their memory trace would have improved by enhancing their recognition for both misleading and non-misleading information.

Follow-up studies could replicate this experimental design implementing a number of alterations to achieve a different outcome from this study, one which would support the hypothesis that accuracy of memory would improve in mood congruent conditions. To enhance the likelihood of a mood inducement, an additional technique could be added, which could aid with the validity of the overall mood inducement success. An audio-visual presentation such as a film could be used to induce specific moods. Furthermore, the current study tested recognition memory through a questionnaire (using words) and past research, has demonstrated that recognition memory

demonstrates a picture superiority effect (Forgas et al., 2005). Therefore, follow up studies could use pictures to test recognition memory to see if pictures result in higher accuracy over words within a questionnaire. In addition to inducing internal mood states, participants could be asked to reflect on the physical context that was experienced during their memory of an event to enhance the mood that was experienced at the time (Forgas et al., 2005).

If future research were to implement these changes and find results in line with the hypothesis of this experiment, the findings could pose some practical and theoretical implications. For example, police officers and the criminal justice system could effectively use mood as a system variable and incorporate mood inducement into the cognitive interview. Adding mood as a component to this type of interview could help eyewitnesses be more accurate and could lead them to reject misleading information that may be posed to them by other police officers or judicial personnel. Furthermore, lawyers could use mood dependency effect as a tactic to either make an eyewitness look more or less credible. A lawyer may be in a situation where an eyewitness is on the stand and he or she could deliberately induce a mood that was inconsistent with the mood at the time of an event (mood incongruity) in an attempt to make the eyewitness accept misinformation, which would then lessen their credibility. Similarly, they could use tactics that would induce the same mood (mood congruity) and thus augment their memory enhancing their credibility and support their case.

Stepping away from the criminal justice system and the eyewitness, these findings could similarly extend to the educational system by examining the effects it may have on learning and testing in schools. Previous studies have shown that testing is superior when

the conditions that one learns in, are the same as those they are tested in. This could apply to examinations taken in school, particularly examinations that contain multiple-choice questions, which test recognition memory. If individuals are in the same mood that they studied in when they are tested, they may be less susceptible to accepting the wrong information.

Although mood was not successfully induced in the current study, mood can, and has been shown to, have an effect on memory. How the mood is generated, whether it is the same at encoding and retrieval, and whether retrieval is by recognition or complete recall, all have influence on the accuracy of memory and need to be further considered and tested to be in a position to definitively determine a mood contextual effect on memory.

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Appendix I:

Descriptive task for positive encoding condition

Answer the following questions below in the most detail (be descriptive).

Think of a time in your life where you were very happy...

What was the particular occasion?

How did you feel?

Why was this occasion so happy for you?

Please provide as many details as you can about this particular event below:

Appendix II:

Descriptive task for neutral encoding condition

Answer the following questions below in the most detail (be descriptive).

Answer the following questions regarding your routine before you go to sleep at night ...

What do you do to prepare for bed?

In what order do you carry out your routine?

What is the last thing you do before you go to sleep?

Provide as many details as you can about your night routine below:

Appendix III:

Descriptive task for positive retrieval condition

Answer the following questions below in the most detail (be descriptive).

What was the best day of your life:

Why was this the best day of your life?

How did you feel on this day?

Why was this the best day of your life?

Provide as many details as you can about this day below:

Appendix IV:

Descriptive task for neutral retrieval condition

Answer the following questions below in the most detail (be descriptive)

Answer the following questions about your breakfast that you eat

What do you usually eat for breakfast in the morning?

How do you go about preparing this meal?

What time do you generally eat your breakfast?

Provide as many details as you can about what you eat for breakfast and how you go about preparing it below:

Appendix V

Questionnaire: Scene of the Accident

Please answer the following questions by circling either "YES" or "NO"

1. Was the smashed car on the road purple?

YES / NO

2. Did you see the white car next to the smashed car?

YES / NO

3. Was that the smashed car next to the bus?

YES / NO

4. Was there a red tow truck on site?

YES / NO

5. Was there a fireman holding a fire extinguisher?

YES / NO

6. Was there a fireman holding a fire hose?

YES / NO

7. Did you see an ambulance on site?

YES / NO

8. Did you see the paramedic standing outside of the ambulance?

YES / NO

9. Did you see the dent in the back of the white car?

YES / NO

10. Did you see broken glass next to the smashed car?

YES / NO

11. Did you see the news reporter at the scene of the accident?

YES / NO

12. Did you see a person on the stretcher?

YES / NO

13. Did you see police cars at the scene of the accident?

YES / NO

14. Did you see 6 police cars?

YES / NO

Curriculum Vitae

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