MEMORY FOR MAYHEM

by

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B.Sc., The University of Alberta, 1995
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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in

THE FACULTY OF GRADUATE STUDIES

(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

January 2005

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Abstract

The examination of the variables influencing eyewitness memory is of paramount importance to the discipline of forensic psychology. Indeed, understanding the factors associated with eyewitness memory is crucial when eliciting and evaluating the recall of victims, witnesses, and perpetrators of crime. The present investigation was the first comprehensive field study to explore the variables associated with eyewitness memory in the context of examining perpetrators of violent crime. An objective was to assess certain elements of a recently developed biopsychosocial theory of eyewitness memory. One hundred and fifty male incarcerated violent crime perpetrators were asked to recall up to five different types of memories: an act of perpetrated instrumental violence, an act of perpetrated reactive violence, a subjectively disturbing (traumatic) event, a positively valenced event, and a perpetrated act of violence for which the offender had poor memory. The phenomenological characteristics of the memories were compared and state and trait variables were assessed. A number of factors were associated with the participants’ responses to their provided events and their memories for such events. In terms of precipitating factors, acts of instrumental violence were experienced with significantly lower levels of negative valence and were recalled significantly better in comparison to acts of reactive violence. Although participants’ memories for their positive and subjectively disturbing experiences did not significantly differ in phenomenological characteristics, the latter experiences were associated with significantly higher reports of state dissociation and negative valence than the former. In regards to perpetuating factors, increased reports of rehearsal had a facilitating effect on memory. Psychopathy was examined as a predisposing factor and psychopathic
participants reported significantly higher levels of positive valence during the commission of their instrumental acts of violence in comparison to the nonpsychopathic participants. Psychopathic participants also reported significantly fewer symptoms of Post Traumatic Stress Disorder in relation to committing such violence in comparison to the nonpsychopathic participants. A pattern indicated psychopathic participants reported better memory for all of their provided experiences in comparison to nonpsychopathic participants. The results are discussed in terms of how the present research supports the extant research and theories. Implications for the criminal justice system are offered.
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Acknowledgements

I would like to thank a number of individuals who helped me throughout the years and made this dissertation possible. At the top of the list is my supervisor, Dr. John Yuille. Thanks for taking a chance on me, John. Thanks for the opportunity, the guidance, the support, and the mentorship. Above all, thanks for the friendship. I also would like to thank Dr. Howard Burton for his wisdom, encouragement, and friendship. Without Howie, I would not have had the opportunity to commence graduate school, let alone finish. My parents and brother, Ira, deserve much credit for providing me with unconditional love and support throughout the years. The same is true for Erica Gehrke for always believing in me. Similarly, I am really grateful to Dorothee Griesel for her endless encouragement and advice. As well, thanks to Dr. Hugues Hervé for his friendship, support, and consultative guidance over the years, particularly in relation to my dissertation and life in general.

The present research could not have been conducted without the tremendous effort of many individuals who served in various capacities (e.g., research assistants, interviewers, coders). Special thanks to Kristin Kendrick, Caroline Greaves, Dorothee Griesel, Sandra Hall, Susan Daflos, Meg Rodgers, Andrea Wardrop, Dan Jankowski, Carrie Cuttler, Trevor Sanderson, Sam Richer, Teresa Howell, Miguel Tejada, and Kim Mancini. I would also like to acknowledge the many transcribers and coders who greatly facilitated the development of the present database. Thanks to all of you for your time and effort. Without your support, the present research would not have been formulated.

Much appreciation is extended to the agencies that provided financial support for the present research. These include the Sir Isaac Walter Killam Foundation, the Social
Sciences and Humanities Research Council of Canada, the American Academy of Forensic Psychology, and the Michael Smith Foundation for Health Research.

I would also like to thank the Correctional Service of Canada (PAC) for facilitating the present research. In particular, I would like to acknowledge Dr. Douglas Boer for his support and Tarnia Schultz, Sharon Marchand, and Mike Stoain for their assistance in data collection. I am also in debt to the Wardens and Deputy Wardens at both Mountain and Kent Institutions, as well as to the Correctional Supervisors and Correctional Officers who helped facilitate this research. I would also like to acknowledge the 150 inmates who participated in the research. Thanks for your time and courage to recall you’re past experiences.

As well, I would like to thank the forensic area for their support over the years. I owe a special thanks to Drs. Don Dutton and Robert Hare for their advice and guidance. I would also like to acknowledge the forensic graduate students and their volunteers for contributing to a pleasant and productive research environment. Thanks to Drs. Delroy Paulhus, Stephen Hart, Don Dutton, John Pinel, Michael Zeitlin, and Steve Lindsay for providing valuable feedback on earlier drafts of this dissertation. Finally, I am grateful to David Marxsen for suggesting the title for this dissertation.
This dissertation provided the first empirical assessment of certain elements of a biopsychosocial theory of eyewitness memory (Hervé, Yuille, & Cooper, under review). In the following sections, the relevant background literature to this study is reviewed. First, the field of eyewitness memory is introduced. Second, a model of eyewitness memory illustrating eyewitness memory variability is described (Yuille & Daylen, 1998). Third, the existing theories that have been used to explain eyewitness memory are reviewed and critiqued. Fourth, the biopsychosocial theory that formed the impetus for the present investigation is outlined. Fifth, unique issues regarding testing the model in offenders are put forward. Finally, the hypotheses, method, results, and discussion are presented.

Eyewitness Memory

Traditionally speaking, eyewitness memory is the recall of criminal events (for reviews, see Brown, Scheflin, & Hammond, 1997; Christianson, 1992). Eyewitnesses include witnesses (Yuille & Cutshall, 1986), victims (Cooper, Kennedy, & Yuille, 1999), and perpetrators (Porter, Birt, Yuille, & Hervé, 2001) of crime. Despite its large empirical foundation, the study of eyewitness memory has largely been atheoretical. Perhaps a reason for the lack of theory is only mock eyewitnesses have been sufficiently examined (Yuille, Rodgers, & Cooper, under review). That is, the vast majority of eyewitness memory research (i.e., thousands of studies) is analogue in nature and attention has largely focused on the variables associated with the recall of individuals unaffected by what they have seen. Essentially, the modal witness of most events seen in the laboratory is akin to the uninvolved bystander at a crime scene, not the victim or perpetrator.
(Tollestrup, Turtle & Yuille, 1994). Although a wealth of empirical attention has examined the memory processes of the uninvolved bystander (Wells & Loftus, 1984; Wells & Turtle, 1987), relatively little is known about the eyewitness memory of victims and perpetrators of crime. The little that is known indicates eyewitness memory is extremely variable. For example, one witness may recall a crime with high levels of accuracy, vividness, and detail. In contrast, another witness to the same crime may remember only a few details or may have complete amnesia. This variability in eyewitness memory was the focus of the present research. That is, the present research was concerned with the factors influencing the variable quality and quantity of eyewitness memory. Yuille and Daylen (1998) have aptly captured eyewitness variability in a model of eyewitness memory. This model is described below.

Yuille & Daylen's Model of Eyewitness Memory

Based upon clinical and research experience, Yuille and Daylen (1998) formulated the following seven different patterns of eyewitness recall: (1) normal forgetting; (2) active forgetting; (3) dissociative amnesia; (4) red out; (5) remarkable memory; (6) script memory; and (7) dissociation at time of event. An eighth pattern, created memory, was subsequently devised due to recent research on the subject. This is the first comprehensive model to describe the variability seen in eyewitness research and practice. These patterns were intended as descriptions of consistent forms of the quality and quantity of eyewitness recall. They represent a mixture of process (e.g., forgetting, dissociation) and the product of process (e.g., red out, dissociative amnesia). The first four (i.e., normal forgetting, active forgetting, dissociative amnesia, and red outs) deal with different patterns of memory loss. Remarkable memories and script memories, in
contrast, are patterns associated with the long-term retention of memories. Dissociation is a process that impacts memory at the time of the event (i.e., how the event is perceived). Finally, created memories are a product of suggestion, not of events. In the following sections, the evidence supporting these patterns is reviewed. When appropriate, the patterns are discussed in terms of their relevance to the present research.

*Pattern one: Normal forgetting*

Normal forgetting occurs for routine, everyday events, such as going out for dinner (Yuille & Daylen, 1998). In general, when a routine event transpires, the memory is initially good. Barring any subsequent events of impact, a rapid loss of details over time is the usual result. Normal forgetting of routine experiences is consistent with Ebbinghaus’s (1885) forgetting curve as delay, or the age of the memory, is a debilitating memory variable. This pattern of memory has been, and continues to be, the focus of study by researchers who utilize an analogue approach to the investigation of eyewitness memory (Yuille & Tollestrup, 1992). For obvious ethical reasons, researchers cannot expose participants to actual crimes and then test their memory, as there is a limit to the stress that can be exerted upon those participating in research (Loftus, 1987). Consequently, researchers have attempted to simulate crimes and related experiences (e.g., traumatic) using an analogue approach. Stemming from the classic Von Litz experiments (Muensterberg, 1908; Stern, 1904; Wigmore, 1909), in the typical analogue eyewitness memory experiment, participants, usually undergraduate students, are divided into two groups: an experimental group and a control group. Emotional words (Kleinsmith & Kaplan, 1963, 1964), slides (Christianson, 1984; Christianson & Loftus, 1987; Christianson & Nilsson, 1984; Yarmey & Jones, 1983), videotaped events (Clifford
& Scott, 1978; Loftus & Burns, 1982), and staged crimes (Hosch & Bothwell, 1990; Hosch & Cooper, 1982; Kassin, 1984) have been used as stimuli to increase stress or arousal levels in an attempt to simulate the circumstances of an actual crime. Typically, participants in both conditions view the same event (usually a simulated crime) for a period of time. At the end of the event, the experimental participants see a violent conclusion, such as a gun shooting, and the control participants view a relatively mundane conclusion. A modal finding from such analogue research is depictions of crimes (or violence) are remembered less well in comparison to mundane events (for reviews, see Brown et al., 1997; Christianson, 1992).

The findings from analogue studies have led some researchers to the conclusion that extreme stress or arousal has a debilitating effect on memory and, consequently, experiencing criminal events leads to poor memory for such events (e.g., Loftus & Burns, 1982). However, this is not a consensus conclusion among eyewitness memory experts (Kassin, Ellsworth, & Smith, 1989; Kassin, Tubb, Hosch, & Memon, 2001), arguably due to the reality that “the relationship of this type of methodology to eyewitness behavior is, unfortunately, tenuous” (Yuille, 1988, p. 249). Indeed, many have questioned the applicability of laboratory based eyewitness memory research to the criminal justice system (Brigham et al., 1982; Brigham & Malpass, 1985; Clifford & Bull, 1978; Fisher, 1995; Goodman, Redlich, Qin, Ghetti, Tyda, Schaaf, & Hahn, 1999; Tulving & Madigan, 1970; Wells & Turtle, 1987; Yarmey, 1983) where the results of analogue studies have been applied (e.g., via expert testimony). Although increased emotional arousal (Christianson, 1984; Christianson & Nilsson, 1984; Kramer, Buckhout, & Eugenio, 1990), stress and anxiety (Kramer et al., 1991; Seigal & Loftus, 1978), and arousal via
aversive stimulation (Brigham et al., 1983; Christianson et al., 1986) has been routinely associated with normal forgetting in the laboratory, as discussed below, the affective responses and memories of actual victims and perpetrators have been shown to be far more complex. Clearly, the types of experiences that lead to Post Traumatic Stress Disorder (PTSD; American Psychiatric Association [APA], 1994), a response often seen in victims (Dunmore, Clark & Ehlers, 1999) and perpetrators (Pollock, 1999) of violent crime, cannot be approximated in the laboratory (van der Kolk, 1996). At best, the typical analogue memory participant is akin to the uninvolved bystander at a crime scene (Tollestrup, Turtle & Yuille, 1994), not the victim or the offender.

Although research does not indicate analogue research generalizes to most victim and perpetrator contexts (Yuille et al., under review), there are a few circumstances that lead actual witnesses to behave like analogue witnesses. For example, victims of fraud also exhibit normal forgetting (Tollestrup et al., 1994). This is due to the reality that, at the time a typical act of fraud is being committed, the person being defrauded is usually unaware a crime is being committed (Yuille & Daylen, 1998). An archetypal instance of credit card fraud is a case in point. If a person uses a stolen credit card to pay for a tank of gas, the gas station employee would normally be unaware that the credit card was stolen. Thus, to the gas station employee, the fraud offender was no different from any other individual who was using the service of the gas station. As with laboratory stimuli, the benign nature of the event results in superficial encoding that is highly susceptible to erosion and distortions. In time, the attendant’s memory for the person who used the stolen credit card is forgotten.
In addition to frauds, normal forgetting may apply to some aspects of more serious criminal events. Although such events typically lead to remarkable memories (see below) of the central details, the peripheral details may be recalled immediately but forgotten with the passage of time (Brown et al., 1997; Christianson, 1992). Issues related to normal forgetting were not directly examined in the present investigation.

**Pattern two: Active forgetting**

As with normal forgetting, this memory pattern also concerns the loss of memory, in this case, resulting from a conscious attempt to forget an experience (Yuille & Daylen, 1998). This process is similar to the neo-Freudian notion of suppression. Active forgetting involves avoiding anything that may remind the person of the event and/or pushing the memory out of mind whenever it arises. This process may be successful in reducing the details available to memory (Klein, Caspi, & Gil, 2003). Active forgetting is distinguished from normal forgetting in two ways. First, the precipitating event, unlike an event subjected to normal forgetting, is not routine or normal. That is, the event leading to active forgetting is traumatic or at least emotionally laden (Hervé et al., under review). Second, in active forgetting, the individual reports PTSD like symptoms (e.g., avoiding stimuli associated with the event, avoiding thinking about the event; APA, 1994, 2000).

Although many victims of crime, such as sexual assault, develop PTSD (e.g., Darves-Bornoz, 1997) and likely engage in active forgetting, no research has directly examined the memory consequences of such a strategy. Similarly, although some perpetrators of crime develop PTSD in relation to their own actions (Pollock, 1999) and the actions of others (Gibson et al., 1999), no research has investigated active forgetting and memory in this context. To examine active forgetting in the present research, the
participants were asked to recall memories of four different types of events that, in theory, could lead to PTSD and, thus, active forgetting. The Impact of Events Scale (IES; Horowitz, Wilner, & Alvarez, 1979) was used to examine avoidance symptoms of PTSD in relation to these memories. By examining the association between PTSD avoidance symptoms and memory for different types of events of potential impact, the present research permitted the largest investigation of active forgetting to date and the first investigation in the offender context. As prior research and theory (Klein, Caspi, & Gil, 2003; Yuille & Daylen, 1998) suggest active forgetting may have a debilitating effect on memory, it was hypothesized that there would be a negative association between avoidance symptoms and memory in the present investigation.

*Pattern three: Dissociative amnesia*

Dissociative amnesia relates to an inability to recall all or part of an experience of impact (APA, 1994, 2000). That is, the precipitating event must involve death or injury or the threat of such. Dissociative amnesia may develop at the time of the event or after some delay (Yuille & Daylen, 1998). The amnesia may be for only part of the event (circumscribed) or for an entire event or series of events (selective; APA, 1994). Dissociative amnesia is diagnosed only when organic amnesia is ruled out (Caine & Lyness, 2000).

Although normal forgetting and active forgetting refer to known processes that result in memory loss, dissociative amnesia is a product of poorly understood processes. Dissociative amnesia is distinguished from normal forgetting by the fact the precipitating event is one the person should recall (e.g., an event of emotional impact). Also, dissociative amnesia is associated with criminal or other types of potentially traumatic
events, not normal, routine experiences (APA, 1994, 2000). Although dissociative amnesia is distinct from active forgetting by the intentional nature of the latter, the possibility that active forgetting may lead to dissociative amnesia cannot be ruled out. Unfortunately, the precise mechanisms concerning its onset and course have not been firmly established.

Dissociative amnesia has been reported by combat veterans (Southwick et al., 1997), by survivors of natural disasters (Koopman, Classen, & Spiegel, 1994), by victims of sexual and physical abuse (Christianson & Nilsson, 1989; Darves-Bornoz, 1997; Mechanic et al., 1998), and by offenders in relation to their crimes (Cima, Merckelbach, Nijman, Knauer, & Hollnack, 2002; Bradford & Smith, 1979). Estimates usually range from 25-45% in perpetrators (Leitch, 1948; Kopelman, 1987; O'Connell, 1960; Taylor & Kopelman, 1984) with relatively higher rates claimed by murderers in comparison to less violent offenders.

The present research directly assessed certain variables associated with dissociative amnesia. As expanded upon below, each participant was asked to provide a memory of a perpetrated violent event for which he had poor memory. The phenomenological characteristics (e.g., self-reported levels of vividness and detail) and the personological (e.g., personality, psychopathy) and situational (e.g., type of event) variables associated with claims of dissociative amnesia were investigated. As amnesia was examined in a variety of ways, the present investigation permitted the most extensive study of dissociative amnesia in offenders to date.
Pattern four: Red out

Red outs occur only in the perpetrator context. This pattern is of concern when the emotional state of the perpetrator at the time of the event is altered by mood. For example, it is possible to become so enraged that a different state of consciousness is attained (Swihart, Yuille & Porter, 1999). In this state of 'catathymia' (Dutton & Yamini, 1995), or in a 'red out', the perpetrator acts in a rigid, derealized manner and is later amnesic for the violent act itself. The acts leading to and following the catathymic incident are, however, available. Thus, in a red out, the amnesia is circumscribed to only the violent aspects of the incident (Swihart et al., 1999). This is consistent with various psychiatric understandings of some forms of amnesia. For example, as noted by Guttmacher (1960), "periods of amnesia can be total and complete, but they are not the rule" (p. 7; also see Tanay, 1969). In this view, if a person commits a violent act in this rage state, the person may later be amnesic for the incidence of violence (O'Connell, 1960).

In support of the red out phenomenon, researchers have delineated strong negative emotions (e.g., rage) as contributory to amnesia, an effect that occurs irrespective of intoxication (Guttmacher, 1960; O'Conner, 1960; Parwatikar et al., 1985). Indeed, there are many instances of domestic violence where offenders claimed amnesia for battering incidents in the absence of alcohol ingestion (Dutton, 1995). Although many of these cases could be construed as malingering, there are cases in which the offender admitted responsibility and provided a detailed memory for certain reprehensible acts (e.g., necrophilia) but claimed amnesia for less shocking, but nevertheless, criminal actions (e.g., multiple stabbings; see Porter et al., 2001).
Two separate explanations for the red out pattern have been proposed. As Hervé et al. (under review) suggest, the loss of memory may be a special case of dissociative amnesia. Alternatively, red outs may occur as an extreme form of the state dependent memory effect. State dependent memory refers to the robust finding that people are better able at remembering an event when tested in the same state in which they experienced the event (Eich, 1980; Goodwin, Powell, Bremer, Hoine, & Stern, 1969). For example, Godden and Baddely (1975) showed deep-sea divers were better able to remember material learned under water when tested underwater as opposed to when tested on land. The reverse was true as well. That is, divers who learnt the material on land were better able to recall it if tested on land than tested under water. Reisberg (1997) reviewed a series of state dependent studies using a variety of stimuli. The results of these studies were consistent with the findings of Godden and Baddely. Thus, memory performance suffers if the context between learning and testing is discrepant and, conversely, performance is facilitated when the context is similar across learning and testing.

If state dependent, the memory may be retrievable. However, this is only likely to occur if the person experiences the same emotional state exhibited during the original incident. Unfortunately, although theoretically appealing and consistently supported by anecdotal evidence, ethical restrictions preclude researchers from returning offenders’ mental states to the time they committed acts of rage-induced violence.

Red outs were not empirically examined in the present research. However, as each participant was asked to provide a memory for a time in which they acted violently and had no memory or poor memory for such an act, it was anticipated anecdotal support for the red out phenomenon would be found. As many offenders commit crimes under the
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influence of alcohol and/or substances (Lightfoot, 1995), and given red outs theoretically arise in the absence of an intoxicated state, drug and alcohol use at the time each provided experience transpired was assessed (but not controlled).

**Pattern five: Remarkable memory**

Stemming from events of emotional impact, remarkable memories tend to be detailed, vivid, generally accurate, and retained over long intervals (Yuille & Daylen, 1998). Events of impact are experiences out of the ordinary that tend to ‘stand out’ in comparison to mundane experiences. The precipitating event may result in either positive or negative valence and will involve high arousal (Cooper, Hervé, & Yuille, 2002). The event may be traumatic when valence is negative and arousal is high. Field studies of eyewitness memory have provided empirical support for this pattern of recall (see Brown et al., 1997; Christianson, 1992; for reviews). For example, in the first field study of eyewitness memory, witnesses to a shooting provided detailed memories and were highly accurate in their accounts, with little loss of accuracy over a period of months (Yuille & Cutshall, 1986). Cutshall and Yuille (1989) reported similar results regarding witnesses’ memories for stabbings and shootings. Children have also reported remarkable memories. For example, Bidrose and Goodman (in press, as cited in Goodman et al., 1999) examined memories of child sexual abuse victims who were audiotaped and photographed as they performed sexual acts. In their interviews with the courts and to the police, the children were highly accurate in their accounts.

In addition to examining eyewitnesses’ memories for actual crimes, some researchers have investigated victims’ memories for traumas. Such research has been consistently applied to the field of eyewitness memory (Brown et al., 1997). In general,
the findings of such research support the results demonstrated by Yuille and colleagues. For example, Thompson, Morton, and Fraser (1997) found survivors of a ferry sinking to be highly detailed and accurate in their accounts of their tragedy in comparison to their memories of a control event (i.e., a dinner party). Similarly, Wagenaar and Groenberg (1990) found survivors of Nazi concentration camps to remember their experiences in a remarkable fashion. Wagenaar and Groenberg highlighted their findings by stating “there is no doubt that almost all witnesses remember Camp Erika in great detail, even after 40 years. The accounts of the conditions in the camp, the horrible treatment, the daily routine, the forced labour, the housing, the food, the main characters of the guards, are remarkably consistent” (p. 84).

Terr (1991) believes these “full, detailed etched-in memories” stem from Type one (‘single blow’) traumatic experiences (p.14). As noted by Leitch (1948), “events of importance, or events of highly emotional significance, as a rule are recalled easily, at will, for very long periods” (p. 461). The precipitating event is unique and consequential. Also, the memory is perpetuated through repeated recall, either to others or to oneself (Yuille & Daylen, 1998), hence the term, remarkable memory. Too often, the normal forgetting pattern is applied to memories of events experienced in the real world. That is, psychologists have testified in court that the pattern of recall found in analogue studies applies to a memory pattern for a victim of rape or a witness to murder. This mixing of ‘apples and oranges’ has produced some of the confusion in the field.

Little research has focused on whether offenders can have remarkable memories for their experiences of perpetrated violence. Although Porter et al. (2002) demonstrated homicide offenders provided over three times the quantity of detail in their accounts of
homicides in comparison to other types of provided offences, their investigation was limited to 17 participants. Although the present investigation did not directly examine remarkable memories, the memories of distinct types of events were compared to examine the relative superiority of memories of some types of events over others (e.g., traumatic versus positive). Further, as rehearsal is a variable associated with remarkable memories (Yuille & Daylen, 1998), rehearsal was examined as a potential memory-influencing factor. Based on research (Scrivner & Safer, 1988) and theory (Yuille & Daylen, 1998), rehearsal was hypothesized to have a facilitative effect on memory.

Pattern six: Script memory

Script memory reflects the blending together of similar episodes into a script (Ceci & Bruck, 1993). Everyone has scripts. For example, a script for grocery shopping usually encompasses formulating a list of needed items, driving to the supermarket, retrieving items from the aisles, paying the cashier, etc. More germane to the present study are script memories of crimes. For example, victims of repeated child sexual abuse may have a general recollection of 'what used to happen' (King & Yuille, 1987). Unless a specific action deviated from the general way the abuse 'used to' transpire, the repeated episodes of abuse may become blended together into a script (Yuille & Daylen, 1998). Script memories are easily distinguished from narrative memories of specific events. For example, compared to the latter, the former have a distinctive linguistic presentation style (e.g., generalized nature, use of tense-less verbs; Nelson & Gruendel, 1981). In Cooper's (1999) study, for example, a few participants had script memories for repeated child sexual abuse. Invariably, their memories for the abuse commenced with the phrase, 'he
used to.' Unlike memories subjected to normal forgetting, script memories may be retained for long periods of time.

As the present investigation involved the elicitation of different types of specific memories, script memories were not a focus. However, some script memories were elicited. For example, one of the pilot participants described a classic script memory regarding childhood physical abuse. In that case, the script memory was exhausted for detail and the participant was asked if he could recall a specific memory. When other script memories arose in the course of the present research, they were similarly handled.

**Pattern seven: Dissociation at the time of the event**

Dissociation is a psychological response to stress. The construct of dissociation has a rich theoretical history (Janet, 1920; van der Kolk, 1996; van der Kolk & van der Hart, 1989). As of late, it has received renewed theoretical (Foa & Hearst-Ikeda, 1996) and empirical attention (Mechanic et al., 1998). This "resurgence of interest" is due to the association between witnessing and being victimized by traumatic/criminal events and the subsequent experience of dissociative symptoms (Spiegel & Cardeña, 1991, p.366). Dissociative responses have been observed in a variety of events including physical and sexual abuse (Chu & Dill, 1990; Darves-Bornoz, 1997; Dunmore, Clark, & Ehlers, 1999; Herman, 1996), natural disasters (Koopman, Classen, & Speigal, 1994), torture (Weisaeth, 1989), and combat (Marmar et al., 1994). The general premise is normally integrated mental processes such as emotion and memory can be structurally separated (APA, 1994, 2000; Cardeña, 1994; Holtgraves & Stockdale, 1997). For example, studies with both victims (Mechanic et al., 1998) and offenders (Cooper et al., under review) indicate dissociation during a crime has a debilitating effect on memory.
Dissociation has been examined at both the state and trait level. In terms of trait dissociation, some individuals dissociate in everyday life (Bernstein & Putnam, 1986). Researchers have consistently found significantly higher levels of trait dissociation in traumatized samples in comparison to controls (Gershuny & Thayer, 1999; Putman, 1995). That is, due to their prior traumatic experiences, some individuals routinely dissociate, not just during traumatic experiences (Chu & Dill, 1990; Dell, 2000; Zatzick, Marmar, Weiss, & Metzler, 1994). Along with high levels of trait dissociation, significant associations between state and trait dissociation in traumatized individuals have been reported (Cooper, 1999; Hunter & Andrews, 2000; Marmar et al., 1994).

State dissociation refers to processes that occur during events. State dissociation serves the defensive function of rendering the initial impact of the experience less intense (Chu, 1998; Spiegel, 1993). A person who dissociates during an event may experience symptoms of depersonalization (‘I do not seem real’) and/or derealization (‘the world does not seem real’; Marmar et al., 1994). Further, to this person, the event may seem to unfold very slowly or very fast, and the person may experience the event as an ‘out of body experience’ and perceive the event as would an observer. Regardless of the form of dissociation, the witness may focus on aspects of the event or on aspects of his/her response to the event (or a combination of both). These two styles are outlined below.

Pattern seven (a): External focus

As an ‘out of body experience’, a person may perceive an event as would an external observer. This is an intriguing pattern as it is generally accepted that most events are naturally perceived through one’s own eyes, i.e., from a ‘field’ perspective (Schacter, 1996). Anecdotal reports, however, suggest some experiences involve the individual
taking the perspective of an observer (Spiegel, 1993; van der Kolk, van der Hart & Marmar, 1996). Typically, this alteration in perception includes the 'observer' viewing the event and themselves from above, looking in from a detached, alternative viewpoint (Yuille & Daylen, 1998). For example, Spiegel reported on an account of a woman who fell from a balcony and “experienced the fall as though she had been standing on a nearby balcony watching a pink cloud float down to the ground” (p. 118). Likewise, Hillman (1981) remarked on a correctional officer’s experience concerning being held hostage during a prison riot. As he was being severely beaten in the testicles, ribs, back, and head, the hostage reported he saw all these things happening to him (Italics added; p.1195).

Observer perspectives have also been reported from offenders during the commission of their crimes (Cooper et al., under review; Porter et al., 2001).

Nigro and Neisser (1983) were the first to demonstrate events could be remembered from an observer perspective where the remembered image “visibly includes the experiencing subject” (Neisser, 1988, p. 367, italics in original; also see Robinson & Swanson, 1993). They found memories recalled from observer perspectives were less common than memories recalled from field perspectives. Further, there was a trend for observer memories to have been produced from events involving a high degree of emotional self-awareness (also see Terry & Barwick, 1995).

There has been little forensically relevant attention on this subject. The small amount of recent research has focused relatively specifically on social phobia (e.g., Hackmann, Clark, & McManus, 2000; Wells, Clark, & Ahmad, 1998; Wells & Papageorgiou, 1999). Only two forensically relevant studies have examined the observer perspective as it relates to dissociation. In the first study, Cooper et al. (2000, 2002) asked
prostitutes to recall three types of autobiographical memories: a time in which they were sexually assaulted, a time in which they experienced a traumatic but non sexual event, and a positive experience. Participants with observer perspectives during events reported significantly higher levels of other forms of state dissociation, irrespective of the type of event recalled. In the second study, Cooper, Dell, Yuille, and Boer (2001) found offenders with observer perspectives during the commission of their index offences had significantly higher levels of both state and trait dissociation in comparison to offenders with field perspectives. These findings are consistent with Terry and Barwick’s (1995) proposition that observer perspectives are a way of “depersonalizing” an experience (p.164; also see van der Kolk et al., 1996).

Although the validity of observer perspectives is established, the phenomenological characteristics of observer memories are unknown. The present research examined observer perspectives in a similar fashion as Cooper et al. (2000, 2002). That is, different types of memories were elicited (e.g., positive, traumatic), participants were assessed for symptoms of state dissociation, and they were dichotomized as having a field or an observer perspective for each of their provided experiences. Such perspectives were examined in relation to the participants’ reports of other forms of state dissociation and their trait dissociative dispositions. As with Cooper at al.’s prior research on the subject, it was hypothesized that the participants with observer perspectives would report higher levels of state and trait dissociation in comparison to participants with field perspectives. The resultant phenomenonological qualities of observer perspectives were also examined, providing the first investigation of the memory consequences of observer perspectives in an offender context.
Pattern seven (b): Internal Focus

Unlike the previous subtype, this pattern occurs when a person dissociates and takes an internal focus (e.g., on their feelings, body chemistry, etc.). When this process happens, the resultant memory will contain only a small quantity of event-related detail. However, the memory will have significant subjective qualities (e.g., regarding the witness’s mental state, body chemistry, etc.; Yuille & Daylen, 1998). This pattern has yet to be empirically investigated. Unfortunately, it was not possible to assess this pattern in the present investigation.

Pattern eight: Created memory

Recent research indicates an eighth pattern must be added to Yuille and Daylen’s (1998) model of eyewitness memory: a created memory (Loftus & Pickrell, 1995; Porter, Yuille, & Lehman, 1999). A created memory is a false memory developed through suggestion (Lindsay & Read, 1994; Loftus, 1993). Research on this issue has been fuelled by the repressed memory/false memory controversy (Brown et al., 1997). In recent years, the criminal justice systems of Canada and the United States have witnessed a burgeoning of emotionally charged trials centering on the issues of repressed and false memories (Lazo, 1995; Vella, 1998). Some mental health professionals argue many of the previously repressed and subsequently recovered memories are instances of false memories, which are the product of faulty suggestive therapeutic and/or police investigative practices (Loftus, 1993). In fact, parents of complainants have successfully sued their children’s therapists for implanting false memories of abuse (Bala, 1996; Leo, 1998) and advocacy groups such as the False Memory Syndrome Foundation have been established (Vella, 1998). Similarly, highly suggestive and coercive police interrogation practices in which
false confessions/memories were produced have been identified (Gudjonsson, 1992; Ofshe, 1992). A combination of personological and situational factors facilitates the creation of a false memory. For the person with a created memory, these factors include having both an introverted and dissociative personality, and being repeatedly interviewed by an extroverted authority figure who uses questionable memory recovery techniques (Porter et al., 1999; Porter, Yuille, Birt, & Lehman, 2000).

Created memories were not a focus of the present investigation, as the verification of this pattern requires an amount of collateral information that was not possible to collect. Furthermore, the interview protocol that was utilized (i.e., the Step Wise Interview; Yuille, 1990) avoids suggestive/leading questions, a necessary prerequisite for the development of created memories.

Caveats Regarding Yuille & Daylen’s Model

The above patterns of memory are not mutually exclusive. For example, a witness with a remarkable memory for the central details of an armed robbery may show normal forgetting for peripheral aspects of the event. A rape victim may have a remarkable memory for aspects of the assault although have dissociative amnesia for the coercive sexual component of the event. Moreover, the effects of alcohol and/or other drugs at the time of the event and/or at the time of recall may modify the above patterns.

The Issue of Veracity of Memory in Field Research

The veracity of memory is an obvious limitation of field research. That is, in contrast to analogue research, the investigator of field research does not have an exact objective record of the event in question. However, this reality does not lessen the value of field research. Indeed, such research, particularly research that utilizes within-subject
comparisons (such as the present research), has utility within various parts of the criminal justice system. For example, assessors (e.g., institutional psychologists) need to know how much detail to expect to hear from a given witness (e.g., a perpetrator of violent crime) regardless of its veracity. The examination of multiple memories from each participant (e.g., positive versus traumatic; instrumental versus reactive violence) in the present investigation will provide an opportunity to assess certain elements of a biopsychosocial theory of memory, independent of issues related to accuracy of memory. These issues are discussed in detail below.

From Research to Theory

Given the memory variability outlined above in Yuille and Daylen’s (1998) model, a theoretical context is required to provide an understanding of the variables associated with each memory pattern. Unfortunately, the existing theories used to explain the results of eyewitness memory research have either taken an overly simplistic approach to elucidate the variables associated with memory or have focused on only one aspect of a multidimensional response to crime (i.e., arousal; Christianson, 1992; Egeth, 1993; Revelle & Loftus, 1990). The most commonly cited theories used to explicate eyewitness memory are the classic arousal-orientated theories by Yerkes and Dodson (1908) and Easterbrook (1959). In a landmark paper, Yerkes and Dodson reported on an inverted U shaped curve to explain the relation between arousal and task performance. As arousal increased, performance increased until an optimal level of arousal was attained. At higher levels of arousal, performance decreased accordingly. Introductory psychology textbooks and many laboratory researchers have embraced this theory as an explanation for arousal’s effect on memory and, thus, crime and traumas’ effect on memory (Brown
et al., 1997). However, this theory has not been validated by field eyewitness memory research (Christianson, 1992; Egeth, 1993; Yuille & Daylen, 1998). For example, the theory cannot explain how events experienced under high arousal result in remarkable memories (Cutshall & Yuille, 1989; Thompson et al., 1997; Yuille & Cutshall, 1986). Alternatively, researchers (Christianson & Loftus, 1987; Maass & Kohnken, 1989; Yuille & Tollestrup, 1992) have increasingly turned to Easterbrook’s (1959) formulation.

Easterbrook (1959) proposed increases in emotional arousal reduce the range of cues an organism can attend. That is, attention becomes narrowed as stress or arousal increases. This narrowing of attention leads to a loss of peripheral cues, although maintaining the central focus of an event. Thus, during times of stress or high arousal, attention is focused on the main facets of the event and aspects of the scenes’ periphery are ignored (Christianson & Loftus, 1987; Safer, Christianson, Autry, & Osterland, 1998; for reviews see Christianson, 1992; Christianson & Engelberg, 1997; Egeth, 1993). The core actions of the event are more amenable to encoding as opposed to peripheral aspects of the scene (Goodman et al., 1999). Elaborating on the Easterbrook hypothesis, Safer et al. (1998) suggested high stress might cause tunnel memory. From this perspective, the highly arousing nature of certain events such as being victimized with a weapon could lead to this phenomenon, resulting in accurate focused recall for the central aspects of the scene/event, at the expense of peripheral details (Kramer et al., 1990; Loftus, Loftus, & Messo, 1987; Maass & Kohnken, 1989; O’Rourke, Penrod, Cutler, & Stuve, 1989; Pickel, 1998, 1999, for review, see Steblay, 1992). Although the Easterbrook hypothesis may partially explain the results of analogue based eyewitness memory studies, it, along with the Yerkes-Dodson law, has limited utility in accounting for the variable findings of
field based eyewitness memory research (Hervé et al., 2002). For example, both theories cannot account for the reality that some eyewitnesses have high quality recall for both central and peripheral details for criminal events that transpired under conditions of high arousal (e.g., Cutshall & Yuille, 1989; Goodman, 2002; Wagenaar & Groenber, 1990; Yuille & Cutshall, 1986). Similarly, both theories cannot account for instances in which both central and peripheral details are impaired as in dissociative amnesia (Hervé, Cooper, Yuille, & Daylen, 2003).

As Easterbrook’s (1959) and Yerkes and Dodson’s (1908) theories suggest, arousal is an important memory-influencing factor. However, it is simplistic to assume arousal is the only or predominant psychological variable that affects eyewitness memory (Hervé et al., under review). The majority of analogue research has assessed only arousal’s effects on memory, neglecting to assess, among other variables, the experimental participants’ cognitive interpretation of their arousal. Thus, the possibility that valence has an effect on cognition, independent of arousal (Hervé, 1999; Hervé et al., under review; Patrick, 1994), is usually not tested. Consequently, eyewitness memory researchers have generally equated the arousal produced by stress with that experienced within a criminal situation, as both are negative in connotation. Again, this appears to be a simplistic view. A sadist and a normal university undergraduate student may, for example, have similar physiological responses to viewing a violent picture or film, but their cognitive appraisal of that arousal may be quite different. Bockheler (1995) showed that, although the level of arousal was no different between experienced and novice sky divers at various points in a jump sequence, the predominant emotion felt by the novice group was fear, as opposed to the excitement endorsed by the experienced sky divers.
Lane, Chua, and Dolan (1999) demonstrated arousal and emotional valence independently activate the visual and anterior temporal cortex. Thus, divergent emotional responses may affect memory independent of arousal.

On the rare occasion in which emotion is assessed in analogue studies, most eyewitness investigators have adopted a unidimensional view of emotion (Revelle & Loftus, 1990). Yet, the affect literature operationalizes emotion as a multidimensional construct, with the dimensions of valence (pleasant/unpleasant) and arousal (arousing/non-arousing) receiving the most empirical validation (Russell, 1989). Unfortunately, the eyewitness literature has given scant attention to the effects of valence on memory, independent of arousal. This is remarkable given that arousal and valence are integral parts of any criminal event (Hartman & Burgess, 1993; Revelle & Loftus, 1990; van der Kolk et al., 1996). It is clear that any investigation attempting to explore the effects of crime on memory, and any theory attempting to explain such findings, should incorporate both arousal and valence as variables (Hervé et al., under review). Both arousal and valence were key variables in the present research.

In addition to relying on unidimensional models of emotion, many laboratory eyewitness memory investigators have assumed arousal/stress/trauma-related effects are relatively homogeneous across situations and individuals (Kramer, Buckhout, & Eugenio, 1990; Kramer, Buckout, Widman, & Tusche, 1991; Seigel & Loftus, 1978). As a result, many memory researchers believe the discrepant findings scattered throughout the literature are a consequence of methodological differences rather than reflecting true variability in cognitive and affective processes (Hervé et al., under review; Yuille & Daylen, 1998). However, given the heterogeneity of memory for criminal events
described above, as well as variable post trauma/crime reactions (Kendall-Tackett et al., 1993; Rind et al., 1998; van der Kolk et al., 1996), such divergent findings represent the true state of affairs, i.e., extreme variability. That is, the available evidence indicates an eyewitness’ affective response to a criminal event and the resultant memory consequences are determined by a number of variables. As proposed by Hervé et al. (under review), the quality and quantity of crime-related memories depend on a number of biopsychosocial variables. This theory, the impetus for the present investigation, is described below. Factors related to the present research are described when appropriate.

A Biopsychosocial Theory of Eyewitness Memory

A comprehensive theoretical model was recently developed (Hervé et al., 2002, 2003, under review) to account for the varying Yuille and Daylen (1998) memory patterns associated with trauma and crime. This model combines biological, psychological, and social influences to explain the variable memory consequences of experiencing trauma and perpetrating crime. A cardinal underlying assumption is a number of predisposing, precipitating, and perpetuating biopsychosocial factors influence eyewitnesses’ psychological responses to criminal experiences and their accounts of their criminal experiences. Predisposing factors are variables inherent to individuals (e.g., traits) and should exist before an event occurs. Precipitating factors are variables occurring during events (and shortly before and after the events), including the nature of the event itself. Perpetuating factors are variables that arise subsequent to events. Hervé et al.’s model proposes many of these factors can affect each stage of memory (i.e., encoding, storage/maintenance, and recall). Some of these factors, as described below, influenced the choice of measures used in the present investigation. As this investigation
examined a larger number of precipitating factors than perpetuating and predisposing
factors, precipitating factors are discussed first. Following the review of precipitating
factors are descriptions of perpetuating and predisposing factors.

Precipitating Factors

One of the prime precipitating factors affecting a number of other variables in
Hervé et al.'s (under review) model is the emotion felt by the witness at the time an event
occurs. As reviewed above, emotion is a multidimensional construct encompassing,
among other factors, the dimensions of valence (pleasant/unpleasant) and arousal
(arousing/non-arousing; Russell, 1989). Based upon this view, Hervé et al.'s model
proposes an individual’s memory for a criminal event will depend on the individual’s
emotional (valence) reaction to the event (Mandler, 1984) and the level of arousal
associated with the event (Revelle & Loftus, 1990). According to Hervé et al., an
individual’s emotional reaction to a criminal event is influenced by their biologically
based sensitivity to physiological arousal (i.e., arousal sensitivity). At the opposite poles
are hypersensitive (i.e., chronically over-aroused) and hyposensitive (i.e., chronically
under-aroused) individuals. This sensitivity affects the degree of arousal an individual
would experience in response to an event.

Blascovich (1990, 1992) and Feldman (1995) suggest arousal sensitivity, defined
as biological sensitivity to Autonomic Nervous System (ANS) arousal, is a major factor
mediating affective response to traumatic/criminal events and, consequently, memory for
such events. Arousal sensitivity, which differs across individuals (Ellis, 1987; Mandler,
1984), sets the threshold at which environmentally elicited arousal is perceived as
traumatic (i.e., high in arousal and extremely unpleasant). Accordingly, highly arousal
sensitive individuals (i.e., hypersensitives) are likely to experience arousing events such as crimes as more traumatic than their less sensitive counterparts (i.e., hyposensitives). In this view, the same situation can lead to a higher level of arousal in a hypersensitive individual than in a hyposensitive individual. Alternatively, as discussed above, the same situation may lead to similar levels of arousal across individuals but each may have a qualitatively different affective experience (Bockheler, 1995). As Berkowitz (1983) explains, “the external occurrence presumably generates only general arousal. What feelings people have and what they do about the event theoretically depends on their interpretation of their internal sensations. They will strike out at the source of their arousal if they label their sensations as ‘anger’ but will experience ‘fear’ and may runaway if they think they are afraid” (p.105). In this view, one event such as perpetrating violence may be arousing but pleasant to a hyposensitive person (e.g., a psychopath) and arousing and unpleasant to someone who is hypersensitive (e.g., an individual with an anxiety disorder). Unfortunately the distinctions between arousal and valence have yet to receive much empirical attention within the eyewitness literature. In short, Hervé et al.’s model suggests differences in arousal sensitivity result in different levels of arousal in individuals to the same event leading to differences in memory (e.g., more central details, less peripheral details; see Christianson, 1992). That is, arousal affects the manner in which events are processed and how they are stored in memory. Individual differences in arousal response suggest the same situation can lead to a variety of arousal levels in different individuals. This variability, and its impact on memory, was a focus of the present research. Given the critical role of arousal and valence on memory, the present investigation retrospectively measured both arousal and valence after each
memory was elicited concerning what each participant experienced at the time each event transpired. Both arousal and valence were assessed as precipitating factors. Given that acts of trauma and violence are arousing events, it was hypothesized that the participants would report higher levels of arousal in relation to their violent and subjectively disturbing (traumatic) experiences in comparison to their positive experiences.

In addition to affective states in response to an event, Hervé et al.’s (under review) model suggests an individuals’ pre-event affective state may affect their memory for a criminal experiences. As indicated above, in terms of the emotional circumplex (Russell, 1980, 1989; Russell, Weiss, & Mendelsohn, 1989), an emotional state is defined in terms of valence (e.g., pleasant vs. unpleasant) and arousal (e.g., non-arousing vs. arousing). The combination of these dimensions can result in a variety of affective states: euphoric (high arousal, high pleasure), excitement (high arousal, moderate pleasure), trauma (high arousal, low pleasure), contentment (moderate arousal, high pleasure), neutral (moderate arousal, moderate pleasure), frustrated/fear (moderate arousal, low pleasure), peace (low arousal, high pleasure), calm (low arousal, moderate pleasure), and boredom (low arousal, low pleasure). Intuitively, someone in a euphoric state will suffer a greater shock, both physiologically and cognitively, by a traumatic/criminal event than someone already in an agitated or trauma state. Moreover, divergent pre trauma states may have different memory consequences. Indeed, if arousal sensitivity is an important mediator of responses to trauma and crime, an individual’s pre trauma emotional state should affect their memory for the trauma/crime. Accordingly, the present research retrospectively examined the emotional state of the participants (e.g., on the dimensions
of arousal and valence), not just at the time each event unfolded, but both before and after the main part of each event.

Notwithstanding their pre-event affective state, individuals are likely to differ in how they respond when they become aroused when either experiencing or perpetrating crime (Hervé et al., under review). As noted above, high levels of arousal likely lead to a narrowing of attentional focus (Easterbrook, 1959). Hervé et al.’s model proposes a dimension related to the focus of narrowed attention: attentional focus on emotional-personal information (i.e., internal focus) vs. attentional focus on event-related information (i.e., external focus). For example, as indicated above, under high arousal, some individuals focus primarily or solely on their own emotional/physiological responses to the event. In contrast, others focus primarily or exclusively on their external environment (e.g., similar to a field or observer memory with an external focus). Still, others may show a mixed focus, including some subjective and some objective aspects of the event. In this view, the focus of attention during arousal (internal vs. external vs. mixed) affects the content of memories for criminal events. As indicated earlier, to investigate divergent attentional foci, the present research permitted the dichotomization of perspectives (i.e., field vs. observer) for each provided experience. Such perspectives are viewed as precipitating factors.

Clearly, an individual’s memory for an event is also affected by what happens during the event. For instance, someone who is typically slow to arouse (i.e., hyposensitive) may suddenly become highly aroused in a reactive situation (Hervé et al., under review). Alcohol and/or other drugs can exacerbate or ameliorate the level of arousal of the individual. In addition, alcohol and/or other drugs also have direct effects
on memory (e.g., Goodwin, 1995; Goodwin, Powell, Bremer, Hoine, & Stern, 1969; Read, Yuille & Tollestrup, 1992; Yuille, Tollestrup, Porter, Marxsen & Hervé, 1998). For these reasons, the present research assessed the use of drugs and alcohol concerning each event. Such variables are construed as precipitating factors.

As reviewed earlier, another state that may occur during a criminal event is dissociation. State dissociation may be relatively weak (e.g., a victim of a rape feeling detached during the event) or extremely strong (e.g., a rape victim mentally leaving their body and forming an observer perspective; Cooper et al., 2002). State dissociation not only affects the emotional state of the individual during the event but it impacts both the quality and quantity of the resultant memory (Cooper et al., under review; Mechanic et al., 1998; van der Kolk et al., 1996). Accordingly, as indicated above, the present study retrospectively examined the dissociative state (or lack thereof) of each participant concerning each event and related such a state (or lack thereof) to his memory.

Considering the robust association between dissociation and trauma, it was hypothesized that the participants would report higher levels of state dissociation during their experiences of trauma and violence in comparison to their positive experiences. Further, given the negative impact of state dissociation on memory in victims of crime (Mechanic et al, 1998), it was hypothesized that state dissociation would be negatively associated with recall.

The nature of the event itself is also a precipitating factor in Hervé et al.'s (under review) theory. Traumatic experiences may be experienced, processed, and remembered differently than mundane experiences (LeDoux, 1992; van der Kolk, 1996). Some researchers, for example, have used items on the Memory Characteristics Questionnaire
(MCQ; Johnson, Foley, Suengas, & Raye, 1988) as memory criterion variables to compare memories of positive and negative life experiences. However, the results of such research have been equivocal. Some researchers have found memory differences between such experiences (D'Argembeau, Comblain, & van der Linden, 2003; Destun & Kuiper, 1999) and other researchers have produced null results (Byrne, Hyman, & Scott, 2001). Although research has examined the impact of experiencing trauma/crime on memory in witnesses (e.g., Cutshall & Yuille, 1989; Yuille & Cutshall, 1986; for reviews, see Brown et al., 1997; Christianson, 1992), and victims (Thomson et al., 1997; Wagenaar & Groeneweg, 1990), no research has examined this issue in offenders. Thus, in the present investigation, as alluded to earlier, the participants were each asked to recall a positive (i.e., a control event) and a subjectively disturbing (traumatic) experience for comparisons to be made between memories for such events. Items from the MCQ were used as memory criterion variables. Based on the results of prior field research (Christianson, 1989, Thomsen et al., 1997) and recent theorizing (Hervé et al., under review; Yuille & Daylen, 1998), it was hypothesized that the subjectively disturbing experiences would be recalled better than the positive experiences.

*Perpetuating Factors*

In addition to precipitating factors, eyewitness memory is influenced by what happens during the retention period (i.e., perpetuating factors). As Hervé et al. (under review) suggest, a key factor influencing the retention of memories is retrieval practice. In general, memory is enhanced by an opportunity to practice the recall of the event (e.g., Ebbinghaus, 1885; Fisher & Geiselman, 1992; Scrivner & Safer, 1988). Thus, providing an account or thinking about an event improves retention. As indicated above, Yuille &
Cutshall (1986) used the term ‘remarkable memory’ to refer to a type of memory associated with such retrieval practice. A remarkable memory usually pertains to a unique event in a person’s life (e.g., a first sexual experience, being a victim of a crime, etc.; Terr, 1991). One consequence of the uniqueness is the person repeatedly recalls the event either to themselves or to others. To study the impact of repeated retellings on memory, the recall history (i.e., frequency of past recall) for each memory reported by the participants was assessed and examined in relation to their provided memories. Recall history is a perpetuating factor in Hervé et al.’s model. As stated earlier, recall history was hypothesized to have a facilitative effect on memory.

As many researchers have demonstrated (Christianson, 1992; van der Kolk, 1996; van der Kolk & Fisler, 1995), the retention of a memory is also affected by the prolonged emotion associated with the event. For example, as reviewed earlier, some individuals who experience a traumatic event or perpetrate a violent crime may develop PTSD symptoms and/or PTSD (APA, 1994, 2000; Pollock, 1999; Saunders, Kilpatrick, Hanson, Resnick, & Walker, 1999; Spitzer et al., 2001; van der Kolk et al., 1996). A defining characteristic of PTSD is repeated reliving of the experience (Horowitz et al., 1979), which can result in retrieval practice leading to a remarkable memory (Yuille & Daylen, 1998). In contrast, an unpleasant memory may lead some individuals to actively try to forget the event (APA, 1994, 2000). As reviewed earlier, active forgetting involves avoiding anything that may remind the person of the event (another feature of PTSD) and/or pushing the memory out of mind whenever it arises. Theoretically, active forgetting may be successful in reducing the details available to memory (Yuille & Daylen, 1998). Thus, prolonged negative affect may produce hypernesia in some
circumstances and enhanced forgetting in others. To examine the differential impact of chronic negative affect (or lack thereof) on memory, symptoms of PTSD were assessed (i.e., symptoms of avoidance and intrusions) concerning each traumatic/criminal event in question provided by the participants in the present research. PTSD symptoms were assessed as perpetuating factors. As theory and research (Scrivner & Safer, 1988; Yuille & Daylen, 1998) suggest retrieval practice can have a facilitating effect on memory, it was hypothesized that intrusion symptoms of PTSD would be positively associated with recall in the present investigation.

**Predisposing Factors**

In terms of predisposing factors, the dimension of arousal sensitivity described earlier is directly related to personality and some psychiatric disorders (Hervé et al., under review). Both mental disorders and personality are predisposing memory influencing factors. For example, introverted individuals are likely to be more sensitive to traumatic experiences than extroverted individuals, as the former are more sensitive to arousal than the latter (Zuckerman, 1979). Accordingly, introverted individuals may feel more threatened under emotional stress than extroverted individuals, a factor likely to affect the quantity and quality of their eyewitness memories. Indeed, although both types of individuals may recall a specific criminal experience as arousing, the introverted individual is likely to recall it as more unpleasant or traumatic in nature than the extroverted individual, a factor with obvious memory consequences. For example, Gudjonsson, Hannesdottir, and Petursson (1999) found offenders that claimed amnesia for their offences to be significantly more introverted than non-amnesic offenders. To explore the relation between personality and memory, each participant in the present
research was assessed with the Big Five Trait Taxonomy (BFI-44s; John & Srivastava, 1999). Comparisons were made based on the participants’ scores on the BFI-44s factors in relation to their memories. Based on Gudjonsson et al.’s research, it was hypothesized that introversion would be associated with the participants’ capacity to claim amnesia for acts of violence.

Personality-related differences are likely exaggerated when considering pathological personalities (Christianson et al., 1996). For example, psychopaths, who are theoretically hyposensitive to arousal (Hare, 1965; Blackburn, 1979; Hervé & Hare, 1998), are likely to feel little traumatic arousal during events of impact and, in particular, during the perpetration of events of impact (Porter et al., 2001). In addition, personality disordered individuals are likely to succumb to cognitive distortions in times of stress, a point that is bound to affect how they interpret their traumatic/criminal experiences, both at the time of encoding and at recall. Hervé et al. suggest these distortions will be consistent with the nature of one’s disorder. Narcissistic eyewitnesses, for example, believing in their invincibility, may recall a bank robbery as less threatening than a catastrophising witnesses with borderline personality disorder. Unfortunately, given the relatively recent attention to individual differences in the eyewitness literature, very little is known regarding the role of personality disorders on memory for criminal events. The scant existing research suggests personality delineates what information is encoded (e.g., Christianson et al., 1996) and mediates post-encoding distortions (e.g., Porter et al., 1999, 2000). Psychopathy, a predisposing factor, was the only personality disorder examined in the present investigation. The participants’ Psychopathy Checklist-Revised (PCL-R;
Hare, 1991, 2003) scores were retrieved from their correctional files to examine differences between psychopaths and nonpsychopaths on a number of variables.

In addition to personality disorders, individuals' Axis I (e.g., psychiatric) histories are also likely to affect their eyewitness memory (Hervé et al., under review). Indeed, psychiatric problems may affect individuals' arousal sensitivity and their interpretative abilities. In terms of arousal sensitivity, individuals with current anxiety problems, for example such as seen in individuals with PTSD (APA, 2000), may be more sensitive to arousal fluctuations than individuals with no such history. Accordingly, they may react to crimes in a similar manner as hypersensitives, irrespective of their trait arousal sensitivity. That is, some Axis I disorders may serve to delineate the intensity of any emotional response, a point with important memory implications. Unfortunately, little is known regarding the influence of Axis I disorders on eyewitness memory, an area in need of research. In addition to helping expand the existing knowledge base regarding the processes affecting memory, such information could also be used as an index of arousal sensitivity (e.g., one would expect anxiety disorders to be over represented in hypersensitive individuals). Unfortunately, it was not feasible to assess for the participants' psychiatric history in the present investigation. However, symptoms of PTSD in relation to each event (save for the positive experience) were assessed. In this context, PTSD symptoms can be best viewed as perpetuating factors (see above) and were examined in the present investigation in terms of how they related to the type of event and the participants' memories for their events. As prior research has demonstrated that offenders are more likely to report PTSD symptoms in relation to being victimized in comparison to victimizing others (Cauffman, Feldman, Waterman & Steinner, 1998;
Spitzer et al., 2001; Steiner, Garcia & Mathews, 1997), it was hypothesized that the participants in the present investigation would report a higher number of PTSD symptoms in relation to their subjectively disturbing (traumatic) experiences than their acts of perpetrated violence.

Finally, the presence or absence of a dissociative disposition is a predisposing memory influencing factor. Such a disposition may relate to an individual’s trauma history, given the burgeoning association between trauma and dissociation (Spiegel, 1993; Spiegel & Cardeña, 1991). Further, as reviewed above, research with both victims (Cooper, 1999; Marmar et al., 1994) and offenders (Cooper et al., 2001b) indicates an individuals’ trait dissociative disposition is associated with their state dissociative reaction concerning traumatic/criminal experiences. Considering this association, and the negative association between trait dissociation and eyewitness memory in both victims (Hunter & Andrews, 2000) and offenders (Cooper et al., under review), the present research assessed trait dissociation in each participant. Trait dissociation is a predisposing factor in Hervé et al.’s (under review) model. It was hypothesized that high levels of trait dissociation would have a debilitating effect on memory.

In summary, Hervé et al.’s (under review) theory suggests a number of precipitating, perpetuating, and predisposing factors independently influence eyewitness memory. As indicated above, the present research provided the first empirical test of certain elements of this theory in a sample of incarcerated violent offenders. As outlined below, the violent offender context is ideal as many of the assumptions of the theory can be examined in a single investigation. In fact, there are certain issues of investigation permitted by the offender context that cannot be examined in the typical witness and
victim context. These issues are outlined below and are discussed in terms of their connection to the present research.

**Investigating Memory in Offenders: Unique Issues**

*Offenders are often victims/witnesses to crime*

In addition to perpetrating crimes, many offenders have been victims of and witnesses to crimes (Burton, Foy, Bwanausi, Johnson, & Moore, 1994; Gibson et al., 1999). These crimes stem from a variety of contexts, from the family home to incarceration (Sirkia, 2000). In fact, offenders tend to report a history of traumatic events, such as physical and sexual assault (e.g., Cauffman, Feldman, Waterman, & Steinner, 1998; Kruppa, Hickey, & Hubbard, 1995), more frequently than individuals from the general population (e.g., Breslau, Davis, Andreski, & Peterson, 1991; Breslau, Davis, Peterson, & Schultz, 1997; Brunet, Boyer, Brillon, Ehresaft, & Stephenson, 1998; Resnick, Kilpatrick, Dansky, Saunders & Best, 1993). Thus, offenders’ memories can be examined from the perspective of both criminal victimization and perpetration.

Surprisingly, no research has examined offenders in this fashion. The present investigation provided the first empirical study of eyewitnesses who have been both victims/witnesses and perpetrators of violent crime. As indicated above, the participants were asked to provide memories of subjectively disturbing (traumatic) experiences that included events such as being victimized or witnessing victimization. For reasons discussed below, they were also asked to provide memories for different types of violent acts. Such memories were compared via a number of variables.
The full range of affect can be examined

In addition to investigating their memories from victim/witness and offender perspectives, the violent offender context permits the examination of the full range of affective response to crime. Consequently, the effects of the full range of affect on eyewitness memory can be investigated. Clearly, this issue cannot be explored in the typical victim/witness context. As reviewed above, victims and witnesses are often negatively affected by their criminal experiences. They may perceive the events as stressful and/or traumatic both at the time of their experiences and in the aftermath. Indeed, in some of the studies reviewed above, a considerable number of victims and witnesses exhibited stress responses (e.g., dissociative; Cooper et al., 2002, under review; Mechanic et al., 1998) during their experiences and some developed PTSD (APA, 1994, 2000) and other disorders (e.g., dissociative) subsequent to their experiences (e.g., Darves-Bornoz, 1997; Mechanic et al., 1997). No research indicates victims or witnesses view criminal victimization as emotionally positive. Thus, in the victim/witness context, only negative affect can be examined in relation to eyewitness memory. In contrast, as reviewed below, clinical-forensic experience and anecdotal evidence suggests offenders may experience a number of different emotions during the commission of violence. These emotions range from extreme pleasure (e.g., excitement, happiness; Hare, 1993; Porter & Woodworth, 2002) to extreme displeasure (e.g., rage, fear; Dutton, 1995; Swihart et al., 1999). Furthermore, research indicates some offenders develop PTSD in relation to own their violent actions (Pollock, 1999; Spitzer et al., 2001). Accordingly, by studying offenders’ memories for their crimes, the full range of affective responses (i.e., from pleasure to trauma) can be assessed (both proximal and distal) and the effects of these
responses on memory can be examined. As the present research involved the elicitation of memories of violent acts and the assessment of proximal (e.g., valence, state dissociation) and distal responses (i.e., PTSD symptoms) to such violence, the aforementioned issues were examined. For reasons expanded upon below, the present research involved the elicitation of different types of violent memories from different types of offenders to explore the association between offender typology, violence typology, affective responses, and eyewitness memory.

Converging evidence suggests an offender’s affective response (both proximal and distal) to committing criminal violence depends on a variety of variables such as the type of violence employed and aspects of their personality (Pollock, 1999). Theoretically, it follows that an offender’s memory for perpetrated violence will be impacted by these variables (Hervé et al., 2003; Porter et al., 2001). These issues are discussed below.

Different types of violence can be examined

In terms of violence, the instrumental-reactive distinction has received the most empirical attention in the aggression literature (e.g., Chase, O’Leary, & Heyman, 2001; Cornell et al., 1996; Hervé, Petitclerc, & Hare, 1999). Although the exact terminology of this dichotomy is found under a variety of categorizations (e.g., reactive-proactive; Hubbard, Dodge, Cillessen, Coie, & Schwartz, 2001; Poulin & Boivin, 2000; hostile-instrumental, impulsive-premeditated, hot blooded-cold blooded; Bushman & Anderson, 2001; impulsive-instrumental; Tweed & Dutton, 1998; expressive-instrumental; Salfati, 2000), the underlying meaning is essentially the same. On the one hand, instrumental, or proactive, violence requires forethought and is essentially a means to an end (Woodworth & Porter, 2002). For example, instrumental violence could be employed for an individual
to acquire money, goods, and/or sexual gratification. On the other hand, reactive, or hostile, violence requires provocation (be it real or perceived) and typically occurs in the context of emotional arousal (Berkowitz, 1983, 1990; Cornell et al., 1996; Dutton, 1995). Although the instrumental-reactive dichotomy is not without criticism due to its overly broad division of a complex behavior (i.e., violence/aggression; e.g., Bushman & Anderson, 2001; Woodword & Porter, 2002), the division has shown utility in the sexual violence, general violence (Brown & Forth, 1997; Serin, 1991), and domestic violence literatures (e.g., Chase et al., 2001; Tweed & Dutton, 1998).

Scant research attention has focused on the psychological consequences of committing instrumental versus reactive violence. Although Pollock’s (1999) investigation suggests offenders are more likely to receive PTSD diagnoses in relation to committing reactive violence in comparison to instrumental violence, no other research has examined this issue. The present investigation involved the elicitation of memories of perpetrated reactive and instrumental violence and the assessment of PTSD symptom reactions in relation to such violence in an attempt to replicate Pollock’s findings. It was hypothesized that the participants would report higher levels of PTSD symptoms in relation to reactive acts of violence in comparison to instrumental acts of violence.

In terms of memory, the reactive-instrumental division is theoretically associated with differential eyewitness recall (Hervé et al., 2002, 2003). For example, Porter et al. (2001) and Swihart et al. (1999) suggest instrumental violence should lead to high quality recall, as instrumentally motivated offenders are likely to fantasize about the violence prior to engaging in it. Using a more multidimensional view, Hervé et al. (under review) suggest memory for perpetrated violence is dependent on the type of violence used and
the affect associated with the violence. For example, Hervé et al. propose that, because the motivation for reactive violence is, by definition, internal (e.g., rage, anger) as opposed to the external motivation of instrumental violence (e.g., financial), the affect associated with reactive violence is likely to result from internal (e.g., subjective) as opposed to external (e.g., event-related) sources. Accordingly, if an individual were focused on the source of affect during a reactive act of violence (e.g., an internal source such as rage), the individual would likely have relatively poorer memory for the actual event proper. That is, poorer memory in comparison to if the event was instrumental in nature and the source of affect was associated with the event itself. In the latter case, one would expect high quality recall, particularly if the event was instrumentally egosyntonic and the perpetrator was hyposensitive to arousal.

In spite of its theoretical association with memory, no research has directly examined the memory consequences of committing such divergent types of violence. There is some research, however, suggesting reactive acts of violence are associated with amnesia. For example, Taylor and Kopelman (1984) found the non-instrumental motivation of homicides to be a factor related to claims of amnesia in a sample of homicide offenders. Other research suggests negative valence (e.g., rage, jealousy) during the commission of violence is detrimentally associated with recall (Hopwood & Snell, 1933; O’Connell, 1960). Considering this research, and the theoretical speculations reviewed above, the relationship between the types of violence employed (e.g., reactive vs. instrumental) was investigated in the present research in terms of both affect (proximal and distal) and memory. Based on the research and theory reviewed above, it
was hypothesized that the instrumental acts of violence would be recalled better than the reactive acts of violence.

*Different types of offenders can be examined*

In addition to its association with differential psychological responses, including affect and memory, research indicates the instrumental-reactive distinction is related to offender typologies. Thus, by studying eyewitness memory in offenders, different types of violence and different types of offenders can be examined. Research demonstrates psychopathically disordered offenders are particularly likely to engage in instrumental violence. For example, instrumentally motivated batterers have been shown to have significantly more psychopathic traits than reactively motivated batterers (Chase et al., 2001; Tweed & Dutton, 1998). Similarly, research shows a positive relationship between psychopathy and the use of instrumental violence (Cornell et al., 1996). In terms of severe violence, Woodward and Porter (2002) examined 125 homicides and found that over 90% of the psychopathic offenders committed primarily instrumental murders and less than 50% of the nonpsychopaths committed primarily instrumental murders. Thus, the available evidence suggests psychopaths, although diverse in their use of violence (Haapasalo, 1994; Hemphill, Templeman, Wong, & Hare, 1998; Porter et al., 2000), commit a disproportionate amount of instrumental violence in comparison to nonpsychopaths (Brown & Forth, 1997; Serin, 1991). Considering the relationship between psychopathy and instrumental violence, psychopathy was a cardinal variable assessed in the present investigation. As psychopaths are disproportionally represented in inmate populations (i.e., at a rate of between 15-25%; Hare, 1991, 2003), prisons are an ideal context in which to examine psychopathy and eyewitness memory in offenders. As
discussed below, there are many reasons to expect psychopathic offenders to have different affective responses to committing violence in comparison to nonpsychopathic offenders (e.g., due to their hyposensitivity; Hervé et al., 2003). Consequently, as reviewed below, it follows that psychopaths’ memories for violence are likely to differ from nonpsychopaths’ memories for violence.

*Psychopathy*

Although the term is scattered throughout the literature (for review, see Hervé, 2003), Cleckley (1941) originally described the psychopathic construct in its close to current form. Hare subsequently operationalized the construct with the Psychopathy Checklist (PCL; Hare, 1980) and its revised version, the PCL-R (Hare, 1991, 2003). Psychopathy is a socially devastating personality disorder defined by a constellation of interpersonal (e.g., glib, deceitful), affective (e.g., lack of empathy, shallow affect) and behavioral (e.g., parasitic, impulsive) characteristics (Hart & Dempster, 1997; Hart, Hare, & Harpur, 1992). Psychopathy, as defined by the PCL-R (Hare, 1991, 2003), forms two distinct but correlated factors, one describing interpersonal and affective traits (i.e., factor one), and the other (i.e., factor two), socially deviant lifestyle features (Hare et al., 1990; Harpur, Hakstian, & Hare, 1988). Psychopathic criminals are superficial, manipulative, emotionally shallow individuals who commit a disproportionate amount of crime, including violent crime (especially of a callous, instrumental nature; Brown & Forth, 1997; Serin, 1991; for review, see Hart & Dempster, 1997), and are over-represented in jails and penitentiaries, compared to other criminals (Hemphill, Templeman, Wong, & Hare, 1998). Although heterogeneous in makeup and behavior (Hervé, 2000, 2002), psychopathic criminals have committed heinous crimes without remorse and have failed
to learn from punishment (Hare, 1993). Considering the psychological and behavioral traits that characterize criminal psychopaths, it is not surprising that they are prone to committing acts of violence and, in particular, acts of instrumental violence (Spidel, Hervé, Cooper, Mitchell, & Hare, 2002; Spidel, Hervé, Mitchell, Cooper, & Hare, 2001).

**Psychopathy and affect**

Psychopaths' propensity for antisocial behavior (e.g., violence) is related to their affective deficit (Abbott, 2001; Lorenz & Newman, 2000). Essentially, this affective deficit precludes them from experiencing a full range of emotions. As Hare (1993) noted, "psychopaths seem to suffer a kind of emotional poverty that limits the range and depth of their feeling. While at times they appear cold and unemotional, they are prone to dramatic, shallow, and short lived displays of feeling" (p.52). Although psychopaths can experience emotions, they are shallow in comparison to nonpsychopaths. The term "proto-emotions" describes the restricted emotional experience characteristic of psychopathy (Hare, 1993, p.53). That is, although psychopaths can experience primary emotions such as anger and happiness (if only short-lived), it is thought they cannot experience secondary emotions such as guilt and shame (Blair et al., 1995).

The nature of psychopaths' affective deficit has been explored in many studies with varying methodologies (e.g., Gillstrom & Hare, 1988; Lorenz & Newman, 2000; see Hare, 1998, for review). Investigations measuring galvanic skin response reactivity demonstrate psychopaths have less of a response to shock in comparison to nonpsychopaths (Hare, 1965; Hare & Quinn, 1971; Lykken, 1957). Further, startle reflex modulation (i.e., an index of fear) studies show psychopaths fail to manifest a normal startle reflex (Patrick, 1994). Similarly, lexical decision task research indicates
psychopaths' process emotional material differently than nonpsychopaths (Day & Wong, 1996; Hare, 1993; Intrator et al., 1997; Pham & Rimé, 1994; Williamson, Harpur, & Hare, 1991). Moreover, neurological research has shown the amygdala, the area in the brain that processes negative emotions such as fear (LeDoux, 1995; LeDoux, Cicchetti, Xagoraris, & Romanski, 1990), is approximately 1/3 smaller in psychopaths than in nonpsychopaths (Hodgins, 1999). Consistent with this finding, Laakso et al. (2001) has shown psychopaths have a deficit in the posterior hippocampus (an important area for fear conditioning).

After reviewing the literature on psychopathy and affect, Patrick (1994) reported, "psychopaths process emotional material differently from normal subjects" (p. 323). Similarly Day and Wong (1996) concluded psychopaths "have less intense emotional reactions to many everyday situations than do nonpsychopaths" (p. 651). If they have less intense emotional reactions to mundane situations, it follows that they will have less negative emotional reactions to committing violent acts than would nonpsychopaths (Pollock, 1999; Porter et al., 2001; Swihart et al., 1999). The nature of their emotional reactions is likely due to their affective deficit, which includes a hyposensitivity to arousal (Hervé et al., 2003). Converging lines of research demonstrates such hyposensitivity. For example, physiological evidence attests to psychopaths' lower level of baseline arousal, their insensitivity to punishment, and their deficient fear response, in comparison to nonpsychopaths (Hare, 1978). Further, many of the behavioral features of psychopathy (e.g., risk taking, sensation seeking, impulsivity; Hare, 1991, 2003) indicate psychopaths are particularly drawn to arousal-inducing activities (Hervé et al., 2003). Considering such hyposensitivity, it was hypothesized that psychopathic participants in
the present investigation would report lower levels of arousal during their experiences in comparison to nonpsychopathic participants.

Psychopaths’ unique affective deficit is related to the interpersonal/affective factor (Cook, 1998) or the affective facet of psychopathy (Hare, 2003). This factor/facet is thought to be the core of the disorder (Abbott, 2001; Blackburn, 1979; Hare, 1993; Hervé, 2000; 2002; Patrick, 1994). Due to this deficit, it is has been proposed that psychopaths are not negatively affected by their own violent actions (Swihart et al., 1999). For example, they are likely to compensate for their low level of baseline arousal (i.e., their hyposensitivity) by seeking out arousal-inducing situations such as committing violent crimes (Hervé et al., 2003). Thus, by instrumentally seeking arousing situations, they are likely to cognitively interpret the arousal as positive, which could explain their tendency to confuse the emotional polarity of events (Hervé, Hayes, & Hare, 2003). No research, however, has examined this issue in relation to acts of violence. As the present research elicited different types of violent memories from psychopathic and nonpsychopathic offenders and assessed for affective responses during the commission of the violence, the relationship between psychopathy, affect, and violence was examined.

As psychopaths are not likely to experience negative affect during the commission of violence, particularly instrumental violence, it follows that they are quite unlikely to develop a consequent prolonged stress response such as PTSD (Hervé et al., under review; Pollock, 1999; Porter et al., 2001). The clearest empirical example concerning the lack of an association between psychopathy and perpetrator-related stress is Pollock's (1999) investigation of 80 homicide offenders. Pollock found approximately 50% of the nonpsychopathic offenders who committed reactive homicides developed
PTSD (many in relation to their homicidal actions). None of the psychopaths who committed instrumental homicides developed PTSD concerning their homicidal behavior. These results are in line with the affective deficit thought to be unique to the psychopath (Abbott, 2001; Hare, 1993; Hervé, 2000, 2002; Patrick, 1994). Indeed, core psychopathic characteristics such as callousness, lack of empathy/remorse/guilt, and shallow affect (Hare, 1991, 2003) in conjunction with a propensity to engage in instrumental violence (Woodworth & Porter, 2002) do not set the stage for the development of PTSD in relation to their own violent actions, particularly instrumentally violent crimes. As the present study examined psychopathy and elicited memories of both reactive and instrumental instances of violence, an attempt was made to replicate Pollock’s (1999) finding, which suggests an interaction with psychopathy, type of violence, and the development of PTSD symptoms. Based on Pollock’s research, it was hypothesized that psychopathic participants would report fewer symptoms of PTSD in comparison to nonpsychopathic participants. Similarly, considering the robust association between dissociation and PTSD (Cooper, 1999; Cooper et al., 2002), it was hypothesized that psychopathic participants would report lower levels of state dissociation in comparison to nonpsychopathic participants.

*Psychopathy, affect and eyewitness memory*

Although, as reviewed above, theory, research, and clinical experience attest to psychopaths’ affective deficit in experiencing emotions, little research has examined this deficit in relation to eyewitness memory. This is intriguing, considering the relatively high prevalence of psychopathy in prisons (i.e., 15-25%; Hare, 1991; Porter et al., 2000) and the fact that many offenders claim amnesia in relation to their offences, especially
their violent crimes (Gudjonsson, Hannesdottir, & Petursson, 1999; Gudjonsson & MacKeith, 1983; Kopelman, 1987; Leitch, 1948; O'Connell, 1960; Parwatikar et al., 1985; Taylor & Kopelman, 1984; Vivian & Gudjonsson, 1986; Wille, 1974). Although it has been postulated that, given their interpersonal characteristics (Hare, 1991, 2003) and various deceptive strategies (Petriclerc, Hervé, Hare, & Spidel, 2000), psychopaths are more likely to malinger dissociative amnesia than nonpsychopaths (Porter et al., 2001; Swihart et al., 1999), research investigating differences between psychopaths and other offenders in regards to rates of amnesia and the quality of offenders’ criminal memories has been the focus of little empirical attention. Preliminary evidence suggests psychopathic murderers are twice as likely to change their version of their homicides over the course of incarceration in comparison to other homicide offenders (Porter & Woodworth, 2002). No research has examined the veracity of the altered accounts of offenders, however, and no published research has specifically examined the issue of amnesia in psychopathic offenders. The present research specifically explored the issue of amnesia in psychopathic and nonpsychopathic offenders.

Christianson et al. (1996) conducted the first experimental study of psychopathy and eyewitness memory. Using an analogue design, a group of 62 incarcerated offenders viewed a series of slides depicting emotional (i.e., a bloody accident) and non-emotional material (e.g., a bus stop). Consistent with both the research (e.g., Christianson & Loftus, 1991) and theory (Easterbrook, 1959; see Christianson, 1992, for review) reviewed above, nonpsychopaths recalled the central details of the emotional material better than the peripheral information. In contrast, the psychopaths failed to show this central-peripheral bias. That is, they similarly recalled the central and peripheral information
suggesting “a lack of differential processing of emotional information” (p. 442).
Christianson et al. concluded, “the affective coloring that ordinarily serves to differentiate emotional from neutral events apparently does not exist to the same degree in psychopaths as it does in other individuals. In this sense, psychopaths probably find most events affectively neutral” (p. 442). Although Christianson et al.’s results are in line with the findings from other areas of affective research on psychopathy (e.g., Day & Wong, 1996; Williamson et al., 1991), the memory task was lacking in ecological validity. Indeed, as Christianson et al. noted, “as yet, we do not know if psychopaths fail to focus on the central details of a real-life emotional event” (p. 442). The present research capitalized on real-life emotional events to investigate the association among affect, psychopathy, and eyewitness memory. This included an examination of whether psychopaths would report better memories for their past experiences in comparison to nonpsychopaths. Although the remote literature (Lindner, 1944; Sherman, 1957) suggests psychopaths have better memories for their past experiences in comparison to nonpsychopaths, this issue has not been explored in relation to real events such as committing violence. Recent theorizing, however, suggests psychopaths, due to their hyposensitivity, should focus on the most arousing parts of events (i.e., event related arousal; central details) and consequently, should have high quality recall for such events in comparison to nonpsychopaths (Hervé et al., 2003). Thus, it was anticipated that psychopaths would be less likely to claim amnesia for violence in comparison to nonpsychopaths (i.e., less likely to report a poorly recalled act of violence). Further, as it has been speculated that psychopaths view most events as affectively neutral, it was hypothesized that psychopathic participants would: (a) similarly recall their acts of
instrumental and reactive violence; and (b) similarly recall their positive and subjectively disturbing (traumatic) experiences.

The Present Research

The present investigation concerned the study of offenders' eyewitness memories. This research provided the first empirical test of certain elements of a biopsychosocial theory of eyewitness memory (Hervé et al., under review). Based on both empirical and theoretical considerations developed above, incarcerated male violent offenders were asked to provide memories of up to five different types of autobiographical memories: a positive experience, an act of instrumental violence, an act of reactive violence, a subjectively disturbing (traumatic) experience, and a violent event for which the offender had poor memory. The positive memory was primarily used as a control event (e.g., to compare to memories of trauma), as has become standard in autobiographical memory research (Christianson, 1989; Thompson et al., 1997). It was also utilized to assess the utility of some of the measures. Memories of instrumental and reactive acts of violence were elicited to compare these memories on a number of variables (e.g., affect, phenomenological characteristics). Subjectively disturbing (traumatic) memories were obtained primarily to compare with the positive experiences (e.g., regarding affect, memory; to examine the impact of trauma on memory). Finally, poorly recalled acts of violence were elicited to explore certain variables associated with amnesic claims of violence (e.g., phenomenological qualities, personality).

In addition to the elicitation of multiple memories from each participant, a number of individual difference variables were assessed. Based on Hervé et al.'s (under review) biopsychosocial theory of eyewitness memory, the variables were organized into
precipitating (e.g., type of event, arousal, valence), perpetuating (PTSD symptoms, recall history), and predisposing factors (personality, psychopathy). The present research provided the first empirical assessment of some of the assumptions underlying this theory.

*Manipulation Checks and Hypotheses*

*Manipulation Checks*

*Hypothesis one*

The first hypothesis served as a manipulation check. ‘Dissociative amnesia like memories’ (i.e., lack of memory for violent experiences) were hypothesized to have been recalled the poorest in comparison to the other four types of provided memories. This hypothesis was based on the way the memories were operationalized.

*Hypothesis two*

This hypothesis also served as a manipulation check. Compared to the violent and subjectively disturbing (traumatic) events, the positive events were anticipated to have been experienced with significantly higher levels of positive valence.

*Remaining Hypotheses*

Based upon theoretical and empirical considerations developed above, it was anticipated that the memories and psychological responses reported by the participants would vary as a function of a number of precipitating, perpetuating, and predisposing variables (Hervé et al., under review). Although hypotheses were offered throughout the introduction, they are repeated below for the sake of organization.
Precipitating Factors

Hypothesis three

Subjectively disturbing memories were expected to be recalled better than memories of positive experiences. This hypothesis was based on field research (Christianson, 1989; Thomsen et al., 1997) and recent theorizing (Hervé et al., under review; Yuille & Daylen, 1998).

Hypothesis four

Compared to memories of reactive violence, memories of instrumental violence were hypothesized to be recalled better. This hypothesis was based on recent theorizing (Hervé et al., under review).

Hypothesis five

It was predicted participants would report dissociating significantly more during acts of violence and trauma (subjectively disturbing experiences) compared to positive experiences. This hypothesis was based on theory (Janet, 1920) and research (Beere, 1995; Bernat et al., 1998; Carlson et al., 1998).

Hypothesis six

It was expected that high levels of state dissociation would have a debilitating effect on memory. This hypothesis was based on both theory (Janet, 1920) and research (Cooper et al., under review; Hunter & Andrews, 2000; Mechanic et al., 1998).

Hypothesis seven

It was hypothesized that observer perspectives (i.e., out of body experiences) would be associated with significantly higher levels of both state and trait dissociation
than field perspectives (i.e., perceived through one’s own eyes). This hypothesis was based on research (Cooper, 1999, Cooper et al., 2000, 2001, 2002, under review).

Hypothesis eight

It was anticipated participants would recall having been significantly more aroused during the commission of acts of violence and during their traumatic experiences compared to their positive experiences. This hypothesis was based on the theoretical assumption that most crimes/traumas are arousing (Hervé et al. under review).

Perpetuating Factors

Hypothesis nine

It was predicted participants would report significantly more PTSD symptoms in relation to their subjectively disturbing experiences as compared to their acts of perpetrated violence. This hypothesis was based on theory (Hervé et al., under review).

Hypothesis ten

It was anticipated that reactive acts of violence would be associated with significantly more PTSD symptoms compared to instrumental acts of violence. This hypothesis was based on research (Pollock, 1999).

Hypothesis eleven

It was hypothesized that low levels of PTSD intrusion symptoms would be associated with significantly poorer memories compared to memories with high levels of PTSD intrusion symptoms.
Hypothesis twelve

It was expected that high levels of PTSD avoidance symptoms would be associated with memories with significantly less reported detail compared to memories with low levels of PTSD avoidance symptoms.

Hypothesis thirteen

It was predicted that all types of memories would be reported as significantly more detailed when participants had recalled them a considerable number of times in comparison to when they had not recalled them at all or only a few times. This hypothesis was based on theory (Yuille & Daylen, 1998) and research (Scrivner & Safer, 1988).

Predisposing Factors

Hypothesis fourteen

It was anticipated that participants with high dissociative dispositions would report significantly poorer memories compared to participants with low trait dissociative dispositions. This hypothesis was based on theory (Janet, 1920; Porter et al., 2001; van der Kolk & Fisler, 1995; van der Kolk & van der Hart, 1989) and research (Cooper et al., under review; Hunter & Andrews, 2000; McNally et al., 2000; Porter et al., 1999, 2000).

Hypothesis fifteen

It was hypothesized that, compared to participants who would not report the existence of a dissociative-amnesia-like memory (i.e., a poorly recalled act of violence), participants who would recall such a memory would be significantly more introverted. This hypothesis was based on research (Gudjonsson et al., 1999).
Hypothesis sixteen

It was expected that, out of participants that would report the existence of a dissociative-amnesia-like memory (i.e., a poorly recalled memory for perpetrated violence), a significantly higher number of them would be nonpsychopathic than psychopathic. This hypothesis was based on theory (Hervé et al., 2003; Porter et al., 2001; Swihart et al., 1999).

Hypothesis seventeen

It was predicted that psychopathic participants would report dissociating significantly less during their experiences compared to nonpsychopathic participants. This hypothesis was based on theory (Hervé et al., 2003; Porter et al., 2001).

Hypothesis eighteen

It was anticipated that psychopathic participants would report significantly lower levels of arousal during events compared to nonpsychopathic participants. This hypothesis was based upon arousal sensitivity theory (Eysenck, 1997; Hervé et al., 2003; Zuckerman, 1979).

Hypothesis nineteen

It was hypothesized that nonpsychopathic participants would report significantly more PTSD symptoms than would psychopathic participants. This hypothesis was based on research (Pollock, 1999) and theory (Abbott, 2001; Hare, 1993; Hervé, 2002).

Hypothesis twenty

It was expected that psychopathic participants would recall their acts of instrumental violence with a similar quantity and quality as their reactive acts of violence.
This hypothesis was based on theory (Hervé & Hare, 1998) and research (Christianson et al., 1996).

_Hypothesis twenty-one_

It was anticipated that psychopathic participants would recall their positive experiences with a comparable quality and quantity as their subjectively disturbing experiences. This hypothesis was based on theory (Hervé & Hare, 1998) and research (Christianson et al., 1996).
Method

Participants

One hundred and fifty male incarcerated violent offenders were interviewed at either Mountain Institution (58%) or Kent Institution (42%). Both institutions are federal penitentiaries situated around the Fraser Valley in British Columbia. In Canada, all offenders serving time for at least 2 years are incarcerated in federal penitentiaries governed by the Correctional Service of Canada (CSC). Mountain Institution is a medium-security protective custody institution housing over 500 federal offenders. Kent institution is a maximum-security institution containing approximately 300 offenders who are separated into 5 distinct populations. Prior to data collection, ethical clearance for the present research was obtained from the University of British Columbia and the CSC. The scope and needs of the project were discussed with the Senior Psychologists, the Deputy Wardens, the Correctional Supervisors, and the Security Intelligence Officers at each institution. The nature of the study was also presented to the inmate committees at each penitentiary. Descriptions of the study were posted throughout the institutions. Word of mouth was also an avenue used to elicit participation. To be eligible for participation, participants must have had at least one conviction for a violent or a sexual offence. They were also required to read and comprehend English. Interested participants contacted the psychology department at their respective institutions via a written request to schedule an interview session. As well, some participants approached the researchers in person to schedule an interview session. Participants received a $10 honorarium for their participation. The interviews took place in either a private office in the psychology department or in a private office in the participants’ living units. On average, each
interview took approximately 5 hours to complete (including the completion of the questionnaires). Some of the interviews took considerably longer than 5 hours (e.g., 12 hours) and were completed in a span of 2 days. Breaks in the interviews were frequently taken due to institutional requirements (e.g., meals, count, lockdowns).

The participants mean age was 34.93 (SD = 10.58; range: 19-77). Sixty-five percent were Caucasian, 17% were Aboriginal and approximately 18% reported a mixture of ethnic backgrounds. The participants reported an average of 11.25 years of education (SD = 2.13; range: 4.5-18) and indicated being incarcerated for a mean of 6.23 (SD = 5.88; range: .08-27) years for their index offences.

Materials

State Measures

Assessment of state dissociation:

The Peritraumatic Dissociative Experiences Questionnaire (PDEQ; Marmar & Weiss, 1994) is a 10-item scale used to measure participants’ retrospective accounts of state dissociative phenomena regarding each provided event (see Appendix one). Participants were assessed on the PDEQ five times (i.e., once per memory). With each event in mind, participants were asked to rate, using a 1-4 Likert format, the degree to which they experienced altered body image, altered time perception, amnesia, an out of body experience, derealization, and depersonalization. For the purposes of the present study, one PDEQ question was removed (i.e., did you get the feeling that something that was happening to someone else was happening to you?) as it was deemed confusing by participants in past research (e.g., Cooper, 1999; Marshall, Orlando, Jaycox, Foy, & Belzberg, 2002) and by clients in clinical settings (Dell, 2001, personal communication).
Thus, in the present study, scores ranged from 0 to 18, with higher scores representing higher state dissociation. PDEQ scores are significantly related to trait (DES) dissociation scores (e.g., $r = .41$; Cooper et al., 2001b) and to PTSD symptomology (Marmar et al., 1994; for review, see Marshall & Orlando, 2002). The PDEQ is routinely used as a measure of state dissociation in both research and clinical practice and has sound psychometric properties (e.g., internal consistency ranging from .75-.85; test-retest reliability of .85; intraclass correlation coefficient of .85; for review, see Marshall et al., 2002).

**Assessment of arousal and valence:**

The Affect Grid (Russell et al., 1989) is a two-dimensional measure of arousal and valence. It is a single-item scale that assesses the dimensions of arousal-sleepiness (i.e., arousal) and pleasure-displeasure (i.e., valence). The scale can be used as a measure of arousal and valence to assess a number of possible criterion variables (e.g., current mood), depending on the objectives of the study in question (Russell et al., 1989). That is, the Affect Grid has general instructions that can be adapted to the goals/needs of specific studies (see Appendix two). For the purposes of the present research, participants were asked to rate their emotional state before (e.g., the minutes before), during, and after (e.g., the minutes after) the main part of each event with the Affect Grid. The timing of the assessments involved each participant discussing the main part of the event (e.g., the violent part for the violent events; the disturbing part for the subjectively disturbing events) and then discussing what preceded and followed the main part of the event. Thus, the participants were assessed with the Affect Grid three times per memory for a total of fifteen times. They were asked to place a single mark on the grid during each administration. Both the valence and arousal scores range from 1 to 9. Higher scores
reflect higher levels of positive valence and arousal, respectively. Across four studies, Russell et al. (1989) demonstrated the Affect Grid to have sound interrater reliability, split-half reliability, and both convergent (with other measures of arousal and pleasure) and discriminant (between the dimensions of arousal and pleasure) validity.

Assessment of memory characteristics:

The Memory Characteristics Questionnaire (MCQ; Johnson, Foley, Suengas, & Raye, 1988) is a 39-item self-report questionnaire that assesses the phenomenological qualities of memory (e.g., vividness, detail, coherence, etc.) for an event (see Appendix three; for review, see Johnson, 1988). Research shows the MCQ can differentiate between true and false memories of word lists (e.g., Mather, Henkel, & Johnson, 1997), videotaped events (Henkel, Franklin, & Johnson, 2000), and childhood experiences (Johnson et al., 1998). Participants responded to each MCQ question on a 7-point Likert scale (e.g., 1 = a vague memory for an event; 7 = a clear distinct memory for an event) regarding each provided memory. Participants were assessed on the MCQ five times (i.e., once per memory). Although widely used by researchers as an assessment of the phenomenal characteristics of memories (e.g., D’Argembeau, Comblain, & van der Linden, 2003; Destun & Kuiper, 1999), the psychometric properties of the MCQ have yet to be reported in the published literature.

Three items on the MCQ were used as memory criterion variables (i.e., question #8 [vividness]: “overall vividness is”: [from 1 = vague to 7 = very vivid]; question #9 [detail]: “my memory for this event is”: [from 1 = sketchy to 7 = very detailed]; question #33 [overall memory]: “overall, I remember this event”: [from 1 = hardly to 7 = very well]).
Assessment of post-traumatic stress symptomology:

The Impact of Events Scale (IES; Horowitz, Wilner, and Alvarez, 1979) is a 15-item self-report measure of subjective distress that assesses two core components of PTSD, intrusions and avoidance (see Appendix four). This scale assesses the frequency of PTSD symptoms experienced over the past 7 days regarding an identified event. The frequency of items are endorsed on a 6-point Likert scale ranging from 0 = not at all to 5 = often. With each event in mind, participants were instructed to respond to the IES questions concerning PTSD symptomology experienced over the preceding week. The IES was administered after each memory save for the positive memory for a total of four times. Past research with the IES indicates it is superfluous to ask participants to respond to IES questions regarding a positive experience (Cooper, 1999). Further, such a tactic may elicit aberrant reactions from the participants (e.g., why would someone avoid memories of a positive nature and/or find their intrusiveness disturbing (Cooper et al., 2002). The IES has high split half reliability ($r = 0.86$), internal consistency (using Cronbach’s Alpha, intrusion = 0.78, avoidance = 0.82), and test-retest reliability (0.87; Horowitz et al., 1979). According to McDonald (1997), the IES is one of the most frequently used measures of reactions to post-traumatic stress, and has proven reliably able to distinguish between those with and without PTSD (Arata, Saunders, & Kilpatrick, 1991). Although the IES is not diagnostic of PTSD per se (Joseph, 2000), scores of 14 or greater on each of the sub-scales are highly correlated with SCID diagnoses of PTSD (Rowan, Foy, Rodriguez, & Ryan, 1994).


**Trait Measures**

*Assessment of trait dissociation:*

The Dissociative Experiences Scale (DES; Bernstein-Carlson & Putnam, 1993; Bernstein & Putnam, 1986) is a 28-item self-report inventory used as a means of quantifying trait dissociative experiences in both clinical and non-clinical adult samples. The original DES required the participant to make a slash mark on a 100-mm. line to indicate the percentage of time in which they experienced certain dissociative phenomena (e.g., derealization, depersonalization, absorption, amnesia for dissociative states). For ease of scoring, an alternative scale was developed (Bernstein-Carlson & Putnam, 1993) which requires the participant to circle an answer ranging from 0% of the time to 100% of the time regarding a certain type of experience. This scale was used for the present study (see Appendix five). Participants were asked to respond to the DES questions concerning experiences when they were not under the influence of drugs and/or alcohol. The DES reliably distinguishes between normal adults, those with PTSD (APA, 1994, 2000) and those with Dissociative Identity Disorder (DID; APA, 1994, 2000; Bernstein & Putnam, 1986). Test-retest reliability, internal reliability, construct validity (e.g., discriminative, convergent, and criterion), and other psychometric properties are sound (Bernstein-Carlson & Putnam, 1993). As of 1998, The DES was used in over 250 published studies (Carlson, Armstrong, Loewenstein, & Roth, 1998).

*Assessment of psychopathy:*

The PCL-R (Hare, 1991, 2003) is the gold standard in the assessment of psychopathy (Fulero, 1995; Stone, 1995). As indicated earlier, it consists of 20 items that measure the interpersonal (e.g., manipulative, superficially glib), affective (e.g.,
callousness, lack of remorse), and behavioral features (e.g., impulsive, criminally versatile) of psychopathy (see Appendix six). Factor analysis indicates the PCL-R forms two distinct yet related factors (Hare et al., 1990; Harpur, Hakstian, & Hare, 1988). Factor one assesses interpersonal and affective traits and factor two measures socially deviant lifestyle features. The PCL-R was designed for the assessment of psychopathy in criminal populations and is usually scored via a review of the offender’s correctional files and an interview with the offender. However, if the offender refuses an interview, a file-based assessment has been deemed sufficient to score the PCL-R although such a technique may slightly underestimate an individual’s score (Hare, 1991, 2003; Harris et al., 1993; Wong, 1988). Individual items are scored on a 3-point scale (i.e., 0, 1, 2) and are summed to yield a total score, ranging from 0 to 40 (Hart et al., 1992; Seto & Barbaree, 1999). The total score represents the degree to which an individual resembles the prototypical psychopath (Hart & Hare, 1997). Although the PCL-R can be used as a dimensional measure, a score of 30 or greater has been demonstrated to categorize/diagnose a psychopath (Hart & Dempster, 1997). That is, although the dimensions of psychopathy vary across individuals, at a certain level of severity, psychopathy can be construed as a discrete taxon or trait (Cooke, 1998). The sound psychometric properties of the PCL-R are well established (Fulero, 1995, Stone, 1995). As Hare (1991) reports, interrater reliability coefficients across two independent ratings in the normative sample ranged from .91 to .93; internal consistency using Cronbach’s alpha ranged from .85 to .87; and test-retest reliability was .94. Based upon a burgeoning body of research, the content, criterion, and construct-related evidence attests to the PCL-R’s validity as an assessment of psychopathy (Hare, 1991, 2003).
In federal penitentiaries in the Pacific region of Canada, the PCL-R is part of a standard battery of psychological risk assessment inventories utilized on intake (Leis, Motiuk, & Ogloff, 1995). The majority of participants for the present research (i.e., > 80%) had a PCL-R assessment completed, which was located in their correctional files. In a minority of cases, a CSC psychologist (a qualified PCL-R assessor with over 20 years of experience with the CSC) conducted file based PCL-R assessments. Unfortunately, it was not possible to assess all participants with the PCL-R (e.g., due to limited collateral information; some participants were transferred to a different region since participating in the present research).

Assessment of personality:

The Big Five Inventory-44S (BFI-44S; John & Srivastava, 1999) is a 44-item self-report measure of trait personality characteristics (see Appendix nine). It assesses the following ‘Big Five’ personality characteristics: extraversion versus introversion (eight items), agreeableness versus antagonism (nine items), conscientiousness versus lack of direction (nine items), neuroticism versus emotional stability (eight items), and openness versus closedness to experience (ten items). King, Walker, and Broyles (1996) reported the following alpha values for each Big Five personality characteristic in a sample of 75 undergraduates: extraversion = .88; agreeableness = .75; conscientiousness = .81; neuroticism = .83; and openness to experience = .83. Research has consistently demonstrated these ‘Big Five’ trait characteristics form the core structure of human personality (Digman, 1990; John & Srivastava, 1999; see Draycott & Kline, 1995 for an exception). Each participant competed the BFI-44S.
Design and Procedure

Interview and protocol training

Trained forensic psychology graduate students, including the present author, and undergraduate students conducted the interviews. Three of the interviewers were male and seven were female. Due to the breadth of the protocol, 2 weeks of training was necessary. The first step was to train the interviewers in the adult “Step-Wise” interview protocol (Yuille, 1990; for review, see Yuille et al., 1999). This semi-structured interview is routinely used as an investigative tool for victims with allegations of sexual assault and domestic violence. Although there were no a priori reasons to expect the “Step-wise” protocol could not be adapted for use with perpetrators of crime, this was one of the first studies to use the interview protocol on male incarcerated violent offenders. The main tenet of the “Step-wise” interview is to use a funnel approach to questioning. The interviewers were trained to begin with the most general form of questioning (i.e., to elicit a free narrative; e.g., “I’d like you to recall, as best you can, everything about event X that you can remember. Please start from your earliest recollection.”). They were trained to proceed to open-ended questions (e.g., “Do you remember anything else about event X?”), and to ask specific questions only to resolve any uncertainties (e.g., “Do you remember what happened after Mr. X did Y and before Mr. X did Z?”). It has been argued (Fisher, 1995; Fisher & Geiselman, 1992; Jones, 1996) and empirically proven (Porter, Yuille, & Bent, 1995) that this approach to interviewing (i.e., a focus on an uninterrupted free narrative, and a higher proportion of open-ended questions than specific/closed-ended questions) elicits more unbiased accounts than traditional interview methods. The “Step-wise” protocol was used to elicit the five autobiographical memories
from the participants. As noted earlier, the memories elicited were: an instrumentally violent act, a reactively violent act, a subjectively disturbing event, a positively valenced experience, and a memory of perpetrated violence for which the participant had poor memory. Thus, the “Step-wise” interview protocol was utilized five times per participant (i.e., once per memory).

One day was spent in a workshop conducted by the author and Dr. Yuille, in which the “Step-Wise” protocol was outlined in detail and mock interviews illustrating alternative scenarios were presented. The second day was spent practising the Step-Wise protocol in small groups in which the interviewers were videotaped. On the third day, the interviewers watched the tapes of their interviews and received feedback from the present author regarding their performance. The fourth and fifth days entailed presenting the entire project methodology to the interviewers. During the second week, each interviewer went through the entire protocol during a mock interview and feedback was provided. The last day of the second week was a review session in which a discussion of potential problems took place. This day also included a discussion of proper dress, confidentiality, professional conduct, and safety. As well, prior to data collection, each interviewer had a meeting with either a Security Intelligence Officer or a CSC psychologist about safety and professional conduct in the institutions.

Interview

With the informed consent of the participants (see Appendix seven), the interviews were audiotaped to provide a verbatim account of the participants’ memories. The verbatim accounts will be coded for future research, not for the purposes of the present research (see below). At the outset of the interviews, the interviewers developed
rapport with the participants, explained the scope of the study and the limits to confidentiality (see Appendix eight), and received the participants’ informed consent to participate. The interviewers then assessed the participants’ demographic information (e.g., age, ethnic origin, nature of index offence, number of years incarcerated, history of drug and alcohol use). Following, the interviewers used the “Step-wise” interview protocol to elicit the five different types of autobiographical experiences. The order of the memories was counterbalanced to prevent an ordering effect of recall. Considering the present research involved eliciting 5 different types of memories from 150 participants, it was impossible to completely counter balance the memories into a Latin square design. However, the memories were ordered to allow each memory to occupy the first and last position in the protocol for approximately 30 participants.

After each memory was elicited and exhausted for detail in a “Step-wise” fashion, the interviewers assessed the participants’ memories for state variables. As with the ordering of the memories, it was impossible to completely counter balance the state questionnaires into a Latin square design. However, as with the ordering of the memories, the state questionnaires were ordered to allow each memory to occupy the first and last position in the protocol for approximately 30 participants. The following state variables were assessed: dissociation, arousal and valence, PTSD symptoms, and the phemonological characteristics of the memories. State dissociation, a precipitating factor, was assessed using the PDEQ (Marmar & Weiss, 1994; for review, see Marmar et al., 1994). The participants were asked to rate their emotional state (i.e., arousal and valence) before, during, and after each event in question using the Affect Grid (Russell, 1980). Both arousal and valence were assessed as precipitating factors. The degree of
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posttraumatic stress response to each event, save for positive event, was measured with the use of the IES (Horowitz et al., 1979) as a perpetuating factor. Each memory was then assessed regarding cognitive criteria such as vividness, detail, coherence, etc., using the MCQ (Johnson et al., 1988). As one's memory for an event is likely to be influenced by the context in which it occurred, information was also gathered regarding the circumstances that preceded (e.g., alcohol/substance use, stresses, ruminations, planning, etc.) and followed (e.g., alcohol/substance use, ruminations, steps taken to deal with the crime, etc.) the event in question. Concerning alcohol and substance use, the interviewers asked if the participants were under the influence of alcohol or substances at the time each event transpired. If the participants reported alcohol and/or substance use, they were asked to specify the type and quantity of the intoxicant(s) and if they were intoxicated/inebriated/stoned at the time. Following, the participants were asked how many general and similar experiences they had for each provided memory (e.g., how many times they had engaged in instrumental violence; how many times that had committed an instrumental assault). The participants were also asked how many times they had recalled each memory.

After all the memories were elicited, exhausted for detail, and assessed for the above noted state measures, the participants were assessed on the DES (Bernstein-Carlson & Putnam, 1993) and the Big-five trait taxonomy (John & Srivastava, 1999) for trait dissociation and personality characteristics, respectively. On a separate occasion, trained research assistants reviewed the participants' correctional files and located the participant's PCL-R (Hare, 1991, 2003) scores. If more than one PCL-R rating sheet was available, each was examined to assess interrater reliability.
Results

The results are organized as follows: First, the memory criterion variables are discussed. Second, the types of provided memories are illustrated. Third, the analyses for hypotheses one and two are reviewed. These results served as manipulation checks. Finally, the analyses of the remaining hypotheses are presented. Although there is some overlap, these results are ordered by the precipitating, perpetuating, and predisposing factors discussed earlier.

Memory Criterion Variables:

As the participants’ narratives are in the process of being transcribed and coded for quantity and quality of recall, it was not possible assess the participants’ memories based on their provided verbatim narratives. Consequently, as indicated above, three items on the MCQ (Johnson et al., 1988) were used as memory criterion variables (i.e., item 8 [vividness]; item 9 [detail]; and item 33 [overall memory]). The situational and personological variables were examined in relation to their influence on these memory criterion variables. The main statistical analyses involved examining the associations between certain memory-influencing variables (e.g., level of valence, state dissociation) and the memory criterion variables. The analyses were conducted on self-reported memories (i.e., self-reported vividness, self-reported detail, and self-reported overall memory). For the sake of brevity, the participants’ memories are discussed in terms of levels of vividness, detail, and overall memory.

Types of Memories Provided:

After each memory was provided, the interviewers applied a theme label (e.g., instrumental assault). After each interview, the author reviewed the theme label with each
interviewer. There were no discrepancies between the interviewers and the author in this process. The theme labels for each memory resulted in the following categories. The memories of positive (POS) experiences the participants provided were classified into the following categories: meetings with new family members (e.g., meeting future wife; witnessing the birth of a child; [23.3%]); vacation related (also includes ‘a night/day out’; [19.2%]); days related to leaving prison (e.g., being paroled, escaping from prison; [11.0%]); sports related (6.2%); buying something special/helping someone (6.2%); school related (4.8%); and attending weddings and parties (2.7%). Approximately 27% of the POS memories could not be grouped into these categories (e.g., catching a burglar, getting attention from a table full of woman at a bar).

The memories for acts of instrumental violence (IV) the participants provided were grouped into the following categories: assaults/fights (54.1%); robberies (19.7%); stabbings/shootings/murders (9%); sexual assaults (9%); and break and enters and home invasions involving IV (7.4%). Approximately 1% of the memories for acts of IV could not be grouped into these categories. The memories for acts of reactive violence (RV) the participants provided were classified into the following categories: assaults/fights (79%); stabbings/shootings/murders (15.9%); and break and enters and robberies involving RV (1.4%). Approximately 4% of the memories for acts of RV could not be grouped into these categories.

The memories of subjectively disturbing (SD) experiences the participants provided were classified into the following categories: victim of physical/sexual assaults/stabbings (e.g., childhood physical abuse; [27.8%]); witnessing violence (18.1%); hearing about deaths of loved ones/finding loved ones' dead bodies (16%);
being involved in car accidents/witnessing car accidents (7.6%); being arrested/charged or sentenced (5.6%); and being threatened with weapons (1.4%). Approximately 24% of the memories of SD experiences could not be grouped into these categories (e.g., being injured on the job, being forced to eat feces). The lack of memory for violent experiences (LM) the participants provided were grouped into the following categories: assaults/fights (67.1%); stabbings/shootings/murders (15.9%); sexual assaults (8.5%); and robberies involving violence (2.4%). Approximately 6% of the LM experiences could not be classified into these categories.

*Analyses For Hypothesis One (Manipulation Check; MCQ):*

As a manipulation check, LM experiences were expected to have been recalled the poorest in comparison to the other four types of memories. To examine this hypothesis, repeated measures Analysis of Variances (ANOVAs) were calculated on the MCQ memory criterion variables (i.e., items 33 [self-reported overall memory], 8 [self-reported vividness], and 9 [self-reported detail]) for all of the memories. The tests of within-subject effects were significant (i.e., overall memory: Mauchly’s $W[9] = .76$ [Chi-square = 15.73], $p > .05$; $F[4, 236] = 45.78, p < .001$; vividness: Mauchly’s $W[9] = .85$ [Chi-square = 9.47], $p > .30$; $F[4, 236] = 42.19, p < .001$; detail: Mauchly’s $W[9] = .78$ [Chi-square = 13.88], $p > .10$; $F[4, 232] = 43.41, p < .001$). As shown in Table 1, multiple pairwise comparisons (utilizing Least Significant Difference) indicated the LMs were recalled significantly poorer, in terms of overall memory, vividness, and detail in comparison to the other four types of memories (standard deviations are in parentheses).
Based on the above analyses, full empirical support was found for hypothesis one. That is, support was found for the hypothesis that the LMs would be recalled the poorest in comparison to the other four types of memories.

Table 1: Memory Comparisons of the LM Experiences with the Other 4 Experiences

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Memory</td>
<td>5.92 (1.33)</td>
<td>5.80 (1.36)</td>
<td>5.28 (1.73)</td>
<td>5.60 (1.54)</td>
<td>3.07 (1.78)</td>
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<tr>
<td>(MCQ 33)</td>
<td></td>
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<td></td>
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<tr>
<td>&gt; LM</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>p &lt; .001</td>
<td></td>
<td></td>
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<tr>
<td>Vividness</td>
<td>5.80 (1.20)</td>
<td>5.45 (1.41)</td>
<td>4.85 (1.71)</td>
<td>5.28 (1.38)</td>
<td>2.97 (1.71)</td>
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<tr>
<td>(MCQ 8)</td>
<td></td>
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<tr>
<td>&gt; LM</td>
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</tr>
<tr>
<td>p &lt; .001</td>
<td></td>
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<tr>
<td>Detail</td>
<td>5.59 (1.27)</td>
<td>5.44 (1.44)</td>
<td>5.07 (1.40)</td>
<td>5.12 (1.65)</td>
<td>2.87 (1.65)</td>
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<tr>
<td>(MCQ 9)</td>
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<td>&gt; LM</td>
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<td>p &lt; .001</td>
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</table>

Analyses For Hypothesis Two (Manipulation Check; Valence Dimension of Affect Grid):

As a second manipulation check, the POS events were anticipated to have been experienced with significantly higher levels of positive valence in comparison to the IV, RV, SD, and LM events. To examine this hypothesis, a repeated measures ANOVA was calculated on the participants’ responses to the valence dimension of the Affect Grid for all of the events concerning reported valence during the main part of each event. The test of within-subject effects was significant (Mauchly’s W[9] = .68 [Chi-square = 15.51], p > .05; F[4, 168] = 43.42, p < .001). As illustrated in Table 2, multiple pairwise comparisons (utilizing Least Significant Difference) indicated the POS events were experienced with
significantly more positive valence during the main part of the events in comparison to the other four types of events.

Table 2: Valence Comparisons of the POS Experiences with the Other 4 Experiences

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence During</td>
<td>7.81 (1.98)</td>
<td>4.49 (2.74)</td>
<td>3.81 (2.67)</td>
<td>1.51 (1.18)</td>
<td>3.92 (3.02)</td>
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<td></td>
<td>&lt; POS</td>
<td>&lt; POS</td>
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<td></td>
<td>*p &lt; .001</td>
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<td>*p &lt; .001</td>
<td>*p &lt; .001</td>
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<tr>
<td>Valence Before</td>
<td>7.13 (2.39)</td>
<td>4.75 (2.77)</td>
<td>5.14 (3.02)</td>
<td>5.55 (2.98)</td>
<td>5.65 (3.02)</td>
</tr>
<tr>
<td></td>
<td>&lt; POS</td>
<td>&lt; POS</td>
<td>&lt; POS</td>
<td>&lt; POS</td>
<td>&lt; POS</td>
</tr>
<tr>
<td></td>
<td>*p &lt; .001</td>
<td>*p &lt; .001</td>
<td>*p &lt; .001</td>
<td>*p &lt; .003</td>
<td>*p &lt; .01</td>
</tr>
<tr>
<td>Valence After</td>
<td>7.84 (1.98)</td>
<td>4.71 (2.79)</td>
<td>4.14 (2.99)</td>
<td>1.98 (1.86)</td>
<td>3.31 (2.34)</td>
</tr>
<tr>
<td></td>
<td>&lt; POS</td>
<td>&lt; POS</td>
<td>&lt; POS</td>
<td>&lt; POS</td>
<td>&lt; POS</td>
</tr>
<tr>
<td></td>
<td>*p &lt; .001</td>
<td>*p &lt; .001</td>
<td>*p &lt; .001</td>
<td>*p &lt; .003</td>
<td></td>
</tr>
</tbody>
</table>

*Post-hoc Analyses For Hypothesis Two:*

The above analysis was repeated for the reported levels of valence experienced before the main part of the events. The test of within-subject effects was significant (Mauchly’s W[9] = .89 [Chi-square = 6.21], p > .50; F[4, 220] = 6.56, p < .001). As shown in Table 2, multiple pairwise comparisons (utilizing Least Significant Difference) indicated the POS events were experienced with significantly more positive valence before the main part of these events transpired in comparison to the other four types of events.

Finally, the same analysis was repeated for reported levels of valence after the main part of the events. The test of within-subject effects was significant (Mauchly’s W[9] = .76 [Chi-square = 13.44], p > .10; F[4, 200] = 46.66, p < .001). As illustrated in
Table 2, multiple pairwise comparisons (utilizing Least Significant Difference) indicated the POS events were experienced with significantly more positive valence after the main part of these events transpired in comparison to the other four types of events.

Based on the above analyses, full empirical support was found for hypothesis two. That is, the POS experiences were associated with significantly more positive valence in comparison to the other four experiences. The remaining analyses are presented in terms of the hypothesized precipitating, perpetuating, and predisposing. The analyses concerning precipitating factors are presented first.

*Analyses For Hypothesis Three (Precipitating Factor: Type of Event: POS vs. SD):*

It was hypothesized that the SD experiences would be recalled significantly better than the POS experiences. As indicated above (see analyses for hypothesis one), repeated measures ANOVAs were calculated on the MCQ memory criterion variables for all of the memories. To provide a direct comparison, repeated measures ANOVAs were calculated on the MCQ memory criterion variables comparing only the POS and SD experiences. The tests of within-subject effects were significant (overall memory: $F[1, 142] = 5.11, p < .05$; vividness: $F[1, 142] = 7.51, p < .01$; detail: $F[1, 142] = 6.69, p < .025$). As shown in Table 3, the POS experiences were recalled significantly better in regards to overall memory, vividness, and detail than the SD experiences.

Based on the preceding analyses, no support was found for hypothesis three. In fact, the results were significant in the direction opposite to what was hypothesized. Post-hoc analyses examined potential memory-influencing factors that may have affected the main effects for the analyses for hypotheses three (i.e., ages of the experiences, frequency of rehearsal, number of general and similar events experienced).
Table 3: Memory Comparisons Between POS and SD Events

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Subjectively Disturbing (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MCQ 33</strong></td>
<td>6.02 (1.16)</td>
<td>5.73 (1.31)</td>
</tr>
<tr>
<td>(Overall Memory)</td>
<td></td>
<td>&lt; POS, p &lt; .05</td>
</tr>
<tr>
<td><strong>MCQ 8</strong></td>
<td>5.72 (1.21)</td>
<td>5.34 (1.39)</td>
</tr>
<tr>
<td>(Vividness)</td>
<td></td>
<td>&lt; POS, p &lt; .01</td>
</tr>
<tr>
<td><strong>MCQ 9</strong></td>
<td>5.72 (1.24)</td>
<td>5.36 (1.50)</td>
</tr>
<tr>
<td>(Detail)</td>
<td></td>
<td>&lt; POS, p &lt; .025</td>
</tr>
</tbody>
</table>

*Post-hoc Analyses for Hypothesis Three:*

Post-hoc analyses explored possible age differences between the provided events (see Appendix 10a). As the SD experiences were found to be significantly older in age than the POS experiences, repeated measures Analysis of Covariances (ANCOVA) were calculated on the MCQ memory criterion variables to explore possible memory differences between the two experiences after controlling for the ages of the events. When the ages of the memories were controlled, the SD memories were not recalled significantly better, in terms of overall memory, vividness, and detail than the POS memories.

Post-hoc analyses also examined possible differences in the frequency of rehearsals between the POS and SD experiences (see Appendix 10a). The POS and SD experiences did not significantly differ in terms of the number of prior rehearsals. Finally, post-hoc analyses examined possible differences in the number of general and similar experienced events for the POS and SD experiences. The POS and SD events did not significantly differ in terms of the reported number of prior general or similar experiences.
On the basis of the above analyses, no empirical support was found for hypothesis three. Post-hoc analyses showed the POS and SD memories did not significantly differ in terms of the number of previous rehearsals or in the number of general and similar experienced events. Thus, these variables did not confound the null results found for hypotheses three. When the ages of the memories were controlled, participants’ POS and SD memories did not significantly differ in terms of overall memory, vividness, and detail.

**Analyses for Hypothesis Four (Precipitating Factor: Type of Event: RV vs. IV):**

It was hypothesized that memories of acts of IV would be recalled significantly better than memories of acts of RV. To evaluate this hypothesis, repeated measures ANOVAs were calculated on the MCQ memory criterion variables for all of the experiences. The analyses for hypothesis one indicated acts of IV were recalled significantly better, in terms of overall memory ($p < .025$) and vividness ($p < .01$) than acts of RV. The memories did not differ on reports of detail ($p = .09$). To provide a direct comparison, repeated measures ANOVAs compared the MCQ memory criterion variables for only the acts of IV and RV. The main test of within-subject effects were significant for overall memory ($F[1, 115] = 8.97, p < .005$) and vividness ($F[1, 115] = 3.97, p < .05$) but not for detail ($F[1, 115] = 2.12, p > .10$). Thus, the acts of IV were recalled significantly better, in terms of overall memory and vividness but not detail, than acts of RV (see Table 4).

As the results showed (see Appendix 10a), participants’ acts of IV and RV did not significantly differ in terms of the ages of the experiences, the number of prior rehearsals and the number of general and similar experiences. Save for one analysis,
empirical support was found for hypothesis four. That is, support was found for the hypothesis that acts of IV would be recalled significantly better than acts of RV.

Table 4: Memory Comparisons Between IV and RV

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCQ 33 (Overall Memory)</td>
<td>5.89 (1.25)</td>
<td>5.46 (1.49)</td>
</tr>
<tr>
<td>MCQ 8 (Vividness)</td>
<td>5.51 (1.44)</td>
<td>5.18 (1.49)</td>
</tr>
<tr>
<td>MCQ 9 (Detail)</td>
<td>5.55 (1.40)</td>
<td>5.34 (1.37)</td>
</tr>
</tbody>
</table>

Post-hoc Analyses for Hypothesis Four:

Exploratory analyses examined participants’ motivation (i.e., reactive versus instrumental) for committing their LM experiences. As reported below (see analyses for hypothesis 15), 55% of the sample provided LMs. During data collection, the last 21 participants were asked whether their LM experiences were reactively or instrumentally motivated. As illustrated in Table 5 (participants’ distinction), a Chi Square analysis indicated participants’ LM experiences were significantly more likely to be reported as reactively than instrumentally motivated ($x^2[1] = 10.71, p < .01$). Two trained coders examined the narratives of the 82 participants who provided LMs and coded their LM narratives (via transcription for the transcribed interviews or via audiotape for the non-transcribed interviews) for the instrumental-reactive distinction. There were no discrepancies between the coders. As shown in Table 5 (coders’ distinction), Chi Square analysis indicated participants’ LM experiences were significantly more likely to be reactively than instrumentally motivated ($x^2[1] = 21.52, p < .001$). In 18 out of the 21
cases, there was full agreement between participants’ and coders’ distinction. In two cases, participants indicated reactive motivations (i.e., for a robbery and subsequent assault; for forcible confinement and sexual assault) and such motivations were subsequently assessed to be instrumental in nature by the coders. In one case, both the participant and the coders deemed the LM to be partially instrumentally and reactively motivated. In short, there was a high level of agreement between the participants’ and coders’ distinction of the motivation for the LM experiences.

Table 5: Motivations for the LM Experiences

<table>
<thead>
<tr>
<th></th>
<th>Instrumental</th>
<th>Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participants’</strong></td>
<td>14% (n=3)</td>
<td>86% (n=18)</td>
</tr>
<tr>
<td><strong>Distinction</strong></td>
<td></td>
<td>&gt; IV, p &lt; .01</td>
</tr>
<tr>
<td><strong>Coders’</strong></td>
<td>24% (n=20)</td>
<td>76% (n=62)</td>
</tr>
<tr>
<td><strong>Distinction</strong></td>
<td></td>
<td>&gt; IV, p &lt; .001</td>
</tr>
</tbody>
</table>

In conjunction with the analyses related to hypothesis four, the post-hoc analyses provided converging evidence that acts of IV were better recalled than acts of RV. Thus, empirical support was found for hypothesis four.

*Analyses for Hypothesis Five (Precipitating Factor: State Dissociation):*

It was hypothesized that participants would dissociate significantly more during their perpetrated acts of violence and during their SD experiences than during their POS experiences. To evaluate this hypothesis, a repeated measures ANOVA was calculated on the total PDEQ scores for all of the events. The test of within-subject effects was significant (Mauchly’s W [9] = .55 [Chi-square = 32.25], p < .001; Greenhouse-Geisser correction: $F[3.14, 172.7] = 30.56, p < .001$). Multiple pairwise comparisons (utilizing
Least Significant Difference) indicated participants reported dissociating significantly more during all of their acts of perpetrated violence and during their SD events than during their POS experiences (see Table 6). The LM experiences were associated with significantly higher PDEQ scores than all other events and the SD experiences were associated with significantly higher PDEQ scores than both the RV and IV events (see Table 6). The IV and RV experiences did not significantly differ from each other in terms of total PDEQ scores ($p > .10$).

Table 6: State Dissociation Comparisons Between All Events (POS, IV, RV, SD, LM)

<table>
<thead>
<tr>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.34 (2.60)</td>
<td>3.88 (4.02)</td>
<td>4.46 (4.12)</td>
<td>5.98 (4.47)</td>
<td>8.38 (4.66)</td>
</tr>
<tr>
<td></td>
<td>&gt; POS, $p &lt; .005$</td>
<td>&gt; POS, $p &lt; .001$</td>
<td>&gt; POS, $p &lt; .001$</td>
<td>&gt; POS, $p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; IV, $p &lt; .005$</td>
<td>&gt; IV, $p &lt; .005$</td>
<td>&gt; IV, $p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; RV, $p &lt; .025$</td>
<td>&gt; RV, $p &lt; .001$</td>
<td>&gt; RV, $p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&gt; SD, $p &lt; .005$</td>
<td>&gt; SD, $p &lt; .005$</td>
</tr>
</tbody>
</table>

To increase the number of participants in the analysis, the above analysis was repeated for only the POS, IV, RV, and SD events. The test of within-subject effects was significant (Mauchly’s W [5] = .72 [Chi-square = 34.33], $p < .001$; Greenhouse-Geisser correction: $F[2.48, 265.84] = 24.15, p < .001$). Multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported dissociating significantly more during both of their acts of perpetrated violence and during their SD events than during their POS experiences (see Table 7). As well, participants reported significantly higher levels of state dissociation during their SD experiences as compared to their acts.
of perpetrated acts of violence with no significant difference between the two types of violence (see Table 7).

Table 7: State Dissociation Comparisons Between Events (POS, IV, RV, SD)

<table>
<thead>
<tr>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.44 (2.83)</td>
<td>4.07 (4.21)</td>
<td>4.46 (4.05)</td>
<td>5.86 (4.69)</td>
</tr>
</tbody>
</table>

> POS, \( p < .001 \)
> IV, \( p < .001 \)
> RV, \( p < .005 \)

On the basis of the above analyses, full empirical support was found for hypothesis five. That is, perpetrated acts of violence and SD experiences were experienced with significantly higher levels of state dissociation than POS experiences.

Analyses for Hypothesis Six (Precipitating Factor: State Dissociation and Memory):

High levels of state dissociation were hypothesized to have a debilitating effect on memory. To evaluate this hypothesis, bivariate Pearson one-tailed correlations were calculated on participants’ total PDEQ scores and the MCQ memory criterion variables for each event. As shown in Table 8, participants’ total PDEQ scores were significantly correlated with overall memory for the POS experiences but not with vividness or detail. None of the remaining correlations were significant (see Table 8).

On the basis of the above analyses, no empirical support was found for hypothesis six. However, the results for hypothesis one indicated participants’ LM experiences were recalled the poorest in comparison to the other four types of experiences. Further, the results for hypothesis five indicated participants reported the highest levels of state dissociation during their LM experiences in comparison to the other four types of experiences.
experiences. Taken together, these findings suggest state dissociation was a debilitating memory-influencing factor for the LM experiences.

Table 8: Correlations (one-tailed) Between State Dissociation and Memory

<table>
<thead>
<tr>
<th>Total PDEQ Score</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (POS)</td>
<td>$r = -.03$</td>
<td>$r = .10$</td>
<td>$r = .14$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .30$</td>
<td>$p &gt; .10$</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td>Instrumental Violence (IV)</td>
<td>$r = .09$</td>
<td>$r = .15$</td>
<td>$r = .14$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .10$</td>
<td>$p &gt; .05$</td>
<td>$p &gt; .05$</td>
</tr>
<tr>
<td>Reactive Violence (RV)</td>
<td>$r = .03$</td>
<td>$r = -.07$</td>
<td>$r = .00$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .30$</td>
<td>$p &gt; .20$</td>
<td>$p &gt; .40$</td>
</tr>
<tr>
<td>Subjectively Disturbing (SD)</td>
<td>$r = -.05$</td>
<td>$r = -.01$</td>
<td>$r = .06$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .20$</td>
<td>$p &gt; .40$</td>
<td>$p &gt; .20$</td>
</tr>
<tr>
<td>Lack of Memory for Violence (LM)</td>
<td>$r = -.03$</td>
<td>$r = -.01$</td>
<td>$r = .06$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .30$</td>
<td>$p &gt; .40$</td>
<td>$p &gt; .30$</td>
</tr>
</tbody>
</table>

Post-hoc Analyses for Hypothesis Six:

To explore the association between state dissociation and memory in an avenue divergent from above, participants were dichotomized based on their scores on PDEQ item 8 for each event. This item relates to claims of memory problems (amnesia) shortly after each event. Using a conservative definition of amnesia, participants were required to report a 2 on this item (i.e., "definitely") to be considered to have amnesia. Using a liberal definition of amnesia, participants were required to report a 1 on this item (i.e., "a little bit") to be considered to have amnesia. The amnesic and non-amnesic groups were compared via independent samples t-tests in terms of mean differences in state dissociation for each type of event. When the amnesic group was compared to the non-amnesic group, their PDEQ scores for item 8 were removed from the total PDEQ scores as to not artificially inflate the associations between amnesia and state dissociation.
When a conservative definition of amnesia was utilized, 14 participants reported amnesia for their POS experiences and 131 participants did not report amnesia. When a liberal definition of amnesia was applied, 35 participants reported amnesia for their POS experiences and 110 participants did not report amnesia. In both conditions, participants with amnesia reported significantly higher levels of state dissociation than participants who did not report amnesia (conservative: $t[143] = 7.05, p < .001$; see Table 9; liberal: Levene’s test: $F = 11.71, p < .005$; $t[43.29] = 4.85, p < .001$; see Table 10).

Table 9: State Dissociation Comparisons as a Function of Reported Amnesia (Conservative) By Type of Event

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amnesia</td>
<td>7.21 (3.40)</td>
<td>8.32 (5.47)</td>
<td>7.28 (3.87)</td>
<td>9.48 (4.46)</td>
<td>8.51 (4.42)</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .001$</td>
<td>$p &lt; .005$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
<td>$p &gt; .10$</td>
</tr>
<tr>
<td>No Amnesia</td>
<td>2.15 (2.46)</td>
<td>3.09 (2.93)</td>
<td>3.45 (3.31)</td>
<td>5.09 (3.90)</td>
<td>7.00 (3.70)</td>
</tr>
</tbody>
</table>

When a conservative definition of amnesia was used, 19 participants reported amnesia for their acts of IV and 103 participants did not report amnesia. When a liberal definition of amnesia was applied, 40 participants reported amnesia for their acts of IV and 82 participants did not report amnesia. In both conditions, participants with amnesia reported significantly higher levels of state dissociation than participants who did not report amnesia (conservative: Levene’s test: $F = 17.14, p < .001$; $t[19.94] = 4.06, p < .005$; see Table 9; liberal: Levene’s test: $F = 13.16, p < .001$; $t[54.16] = 5.15, p < .001$; see Table 10).
Table 10: State Dissociation Comparisons as a Function of Reported Amnesia (Liberal) By Type of Event

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amnesia</strong></td>
<td>4.80</td>
<td>6.38</td>
<td>6.69</td>
<td>8.26</td>
<td>8.05</td>
</tr>
<tr>
<td></td>
<td>(3.50)</td>
<td>(4.43)</td>
<td>(3.73)</td>
<td>(4.36)</td>
<td>(4.24)</td>
</tr>
<tr>
<td><em>p</em></td>
<td></td>
<td><em>p</em> &lt; .001</td>
<td><em>p</em> &lt; .001</td>
<td><em>p</em> &lt; .001</td>
<td><em>p</em> &gt; .05</td>
</tr>
<tr>
<td><strong>No Amnesia</strong></td>
<td>1.75</td>
<td>2.44</td>
<td>2.68</td>
<td>3.81</td>
<td>5.79</td>
</tr>
<tr>
<td></td>
<td>(2.25)</td>
<td>(2.75)</td>
<td>(2.74)</td>
<td>(3.30)</td>
<td>(3.98)</td>
</tr>
</tbody>
</table>

When a conservative definition of amnesia was utilized, 25 participants reported amnesia for their acts of RV and 112 participants did not report amnesia. When a liberal definition of amnesia was applied, 45 participants reported amnesia for their acts of RV and 92 participants did not report amnesia. In both conditions, participants with amnesia reported significantly higher levels of state dissociation than participants who did not report amnesia (conservative: *t* [135] = 5.07, *p* < .001; see Table 9; liberal: Levene’s test: *F* = 5.42, *p* < .05; *t* [67.90] = 6.40, *p* < .001; see Table 10).

When a conservative definition of amnesia was used, 25 participants reported amnesia for their SD experiences and 117 participants did not report amnesia. When a liberal definition of amnesia was applied, 58 participants reported amnesia for their SD experiences and 84 participants did not report amnesia. In both conditions, participants with amnesia reported significantly higher levels of state dissociation than participants who did not report amnesia (conservative: *t* [140] = 4.81, *p* < .001; see Table 9; liberal: Levene’s test: *F* = 6.24, *p* < .025; *t* [100.22] = 6.58, *p* < .001; see Table 10).

When a conservative definition of amnesia was utilized, 43 participants reported amnesia for their LM experiences and 32 participants did not report amnesia. When a
liberal definition of amnesia was applied, 61 participants reported amnesia for their LM experiences and 14 participants did not report amnesia. In both conditions, participants with amnesia did not report significantly higher levels of state dissociation than participants who did not report amnesia (conservative: \( t[73] = 1.54, p > .10 \); see Table 9; liberal: \( t[73] = 1.82, p > .05 \); see Table 10).

On the basis of the above analyses, partial support was found for hypothesis six. That is, although the correlations between the state dissociation and memory were not significant in the negative direction, results from the analyses for hypotheses one and five indicated state dissociation was a factor in the development of amnesia for the LMs. Furthermore, post-hoc analyses indicated state dissociation was related to amnesia (both conservatively and liberally) for every type of experience, save for the LM experiences.

*Analyses for Hypothesis Seven (Precipitating Factor: Perspective)*:

Events experienced from observer perspectives were hypothesized to have been associated with significantly higher levels of both state and trait dissociation in comparison to events experienced from field perspectives. To evaluate this hypothesis, participants were dichotomized into two groups based on their responses to PDEQ item 5 for each event. As with the post-hoc analyses for hypothesis six, this dichotomization was done in two ways: conservatively and liberally. For each event, observer and field groups were compared via independent samples t-tests in terms of mean differences in state and trait dissociation, as assessed by the PDEQ and the DES, respectively. When the observer group was compared to the field group concerning state dissociation, their PDEQ scores for item 5 were removed from the total PDEQ scores as to not artificially inflate the relationship between observer perspectives and state dissociation.
When conservative and liberal definitions of observer perspectives were used, participants who reported observer perspectives during their POS experiences (conservative: \( n = 8 \); liberal: \( n = 22 \)) reported significantly higher levels of other forms of state dissociation (conservative: \( t[143] = 2.73, p < .01 \); liberal: \( t[143] = 5.10, p < .001 \)) than participants who reported field perspectives (conservative: \( n = 137 \); see Table 11; liberal: \( n = 123 \); see Table 13). Participants with observer perspectives did not have significantly higher levels of trait dissociation than participants with field perspectives when either a conservative \( (t[141] = .40, p > .50) \) or a liberal definition \( (t[141] = .62, p > .50) \) was utilized (see Table 12 and Table 14, respectively).

Table 11: State Dissociation Comparisons as a Function of Field Versus Observer Perspectives (Conservative) By Type of Event

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer</td>
<td>5.62 (3.46)</td>
<td>10.90 (5.32)</td>
<td>9.27 (4.41)</td>
<td>11.10 (3.91)</td>
<td>12.33 (3.61)</td>
</tr>
<tr>
<td>Field</td>
<td>2.55 (3.08)</td>
<td>3.44 (3.25)</td>
<td>3.92 (3.50)</td>
<td>5.02 (3.84)</td>
<td>8.29 (4.16)</td>
</tr>
</tbody>
</table>

When conservative and liberal definitions of observer perspectives were used, participants who reported observer perspectives during their acts of IV (conservative: \( n = 10 \); liberal: \( n = 23 \)) reported significantly higher levels of other forms of state dissociation (conservative: Levene’s test: \( F = 5.05, p < .05 \); \( t'[9.61] = 4.36, p < .01 \); liberal: Levene’s test: \( F = 6.40, p < .025 \); \( t'[26.54] = 5.56, p < .001 \)) than participants who reported field perspectives (conservative: \( n = 112 \); see Table 11; liberal: \( n = 99 \); see Table 13). Participants with observer perspectives did not have significantly higher levels of trait
dissociation than participants with field perspectives when a conservative definition of an observer perspective was used (Levene’s test: $F = 16.15, p < .001; t [9.18] = 2.00, p > .05$; see Table 12). When a liberal definition was applied, participants with observer perspectives had significantly higher levels of trait dissociation than participants with field perspectives (Levene’s test: $F = 25.47, p < .001; t [23.37] = 2.71, p < .025$; see Table 14).

Table 12: Trait Dissociation Comparisons as a Function of Field Versus Observer Perspectives (Conservative) By Type of Event

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer</td>
<td>15.36 (13.34)</td>
<td>29.29 (27.74)</td>
<td>27.47 (26.74)</td>
<td>16.69 (9.77)</td>
<td>16.21 (12.60)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .05$</td>
<td>$p &gt; .05$</td>
<td>$p &gt; .20$</td>
<td>$p &gt; .40$</td>
</tr>
<tr>
<td>Field</td>
<td>13.51 (12.58)</td>
<td>11.69 (9.10)</td>
<td>12.00 (9.51)</td>
<td>13.01 (13.13)</td>
<td>13.42 (10.22)</td>
</tr>
</tbody>
</table>

Table 13: State Dissociation Comparisons as a Function of Field Versus Observer Perspectives (Liberal) By Type of Event

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer</td>
<td>5.45 (3.11)</td>
<td>8.39 (4.51)</td>
<td>7.58 (4.00)</td>
<td>9.35 (4.16)</td>
<td>10.35 (3.78)</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td>Field</td>
<td>2.11 (2.78)</td>
<td>2.91 (2.95)</td>
<td>3.46 (3.27)</td>
<td>4.20 (3.37)</td>
<td>8.00 (4.29)</td>
</tr>
</tbody>
</table>
Table 14: Trait Dissociation Comparisons as a Function of Field Versus Observer Perspectives (Liberal) By Type of Event

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer</td>
<td>15.19 (12.54)</td>
<td>23.14 (21.52)</td>
<td>19.78 (21.22)</td>
<td>15.41 (10.52)</td>
<td>15.93 (11.48)</td>
</tr>
<tr>
<td></td>
<td>p &gt; .50</td>
<td>p &lt; .025</td>
<td>p &gt; .05</td>
<td>p &gt; .20</td>
<td>p &gt; .30</td>
</tr>
<tr>
<td>Field</td>
<td>13.34 (12.62)</td>
<td>10.79 (7.75)</td>
<td>11.71 (8.65)</td>
<td>12.75 (13.56)</td>
<td>13.00 (10.08)</td>
</tr>
</tbody>
</table>

When conservative and liberal definitions of observer perspectives were used, participants who reported observer perspectives during their acts of RV (conservative: n = 11; liberal: n = 26) reported significantly higher levels of other forms of state dissociation (conservative: t[135] = 4.77, p < .001; liberal: t[135] = 5.52, p < .001) than participants who reported field perspectives (conservative: n = 126; see Table 11; liberal: n = 111; see Table 13). Participants with observer perspectives did not have significantly higher levels of trait dissociation than participants with field perspectives when either a conservative (Levene’s test: F = 17.26, p < .001; t[10.23] = 1.91, p > .05) or a liberal definition (Levene’s test: F = 19.80, p < .001; t[27.01] = 1.90, p > .05) was utilized (see Table 12 and Table 14, respectively).

When conservative and liberal definitions of observer perspectives were used, participants who reported observer perspectives during their SD experiences (conservative: n = 21; liberal: n = 43) reported significantly higher levels of other forms of state dissociation (conservative: t[140] = 6.67, p < .001; liberal: t[140] = 7.77, p < .001) than participants who reported field perspectives (conservative: n = 121; see Table 11; liberal: n = 99; see Table 13). Participants with observer perspectives did not have
significantly higher levels of trait dissociation than participants with field perspectives when either a conservative ($t[139] = 1.25, p > .20$) or a liberal definition ($t[139] = 1.26, p > .20$) was utilized (see Table 12 and Table 14, respectively).

When conservative and liberal definitions of observer perspectives were used, participants who reported observer perspectives during their LM experiences (conservative: $n = 9$; liberal: $n = 20$) reported significantly higher levels of other forms of state dissociation (conservative: $t[73] = 2.78, p < .01$; liberal: $t[73] = 2.16, p < .05$) than participants who reported field perspectives (conservative: $n = 66$; see Table 11; liberal: $n = 55$; see Table 13). Participants with observer perspectives did not have significantly higher levels of trait dissociation than participants with field perspectives when either a conservative ($t[70] = .71, p > .40$) or a liberal definition ($t[70] = 1.03, p > .30$) was utilized (see Table 12 and Table 14, respectively).

On the basis of the above analyses, partial empirical support was found for hypothesis seven. Regarding all events (using both definitions) participants with observer perspectives reported significantly higher levels of other forms of state dissociation than participants with field perspectives. Although, save for one result, all findings with respect to trait dissociation and the field-observer perspective were null, all mean differences were in hypothesized direction.

**Post-hoc Analyses for Hypothesis Seven:**

Post-hoc analyses explored the phenomenological memory characteristics of events perceived from observer and field perspectives (see Appendix 10b). When both conservative and liberal definitions of observer perspectives were used, memories of events experienced from observer perspectives did not significantly differ in
phenomenological memory characteristics from memories of events experienced from field perspectives.

*Analyses for Hypothesis Eight (Precipitating Factor: Arousal):*

It was hypothesised that participants would recall themselves to have been significantly more aroused during the commission of violence and during their SD events as compared to during their POS experiences. To evaluate this hypothesis, a repeated measures ANOVA was calculated on participants’ responses to the arousal dimension of the Affect Grid regarding reported levels of arousal *during* the mains parts of all five experiences. The main test of within-subject effects was not significant (Mauchly’s $W[9] = .50$ [Chi-square = 28.01], $p < .005$; Greenhouse-Geisser correction: $F[3.04, 127.55] = 2.21, p > .05$). However, multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported to have been significantly more aroused during their acts of IV and during their LM experiences in comparison to during their SD experiences (see Table 15). All other arousal comparisons were null.

**Table 15: Arousal Comparisons By Type of Event (POS, IV, RV, SD, LM)**

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Valence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>During</strong></td>
<td>7.37 (2.07)</td>
<td>7.98 (1.42)</td>
<td>7.77 (1.65)</td>
<td>7.09 (2.45)</td>
<td>7.95 (1.40)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Before</strong></td>
<td>6.38 (2.60)</td>
<td>6.64 (2.49)</td>
<td>6.46 (2.16)</td>
<td>5.75 (2.31)</td>
<td>6.03 (2.40)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>After</strong></td>
<td>6.08 (2.81)</td>
<td>5.80 (2.74)</td>
<td>6.39 (2.41)</td>
<td>5.24 (2.80)</td>
<td>5.59 (2.64)</td>
</tr>
</tbody>
</table>
To increase the number of participants in the analysis, the above analysis was repeated and the LM events were excluded from the analysis. The main test of within-subject effects was significant (Mauchly's \( W[5] = .84 \) [Chi-square = 18.55], \( p < .005 \); Greenhouse-Geisser correction: \( F[2.68, 286.60] = 6.24, p < .005 \)). Multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported to have been significantly more aroused during their POS experiences and during their act of IV and RV than during their SD experiences (see Table 16). All other arousal comparisons were null.

Table 16: Arousal Comparisons By Type of Event (POS, IV, RV, SD)

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence During</td>
<td>7.60 (1.85)</td>
<td>7.88 (1.58)</td>
<td>7.87 (1.71)</td>
<td>6.89 (2.56)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; POS, ( p &lt; .025 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; IV, ( p &lt; .005 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; RV, ( p &lt; .005 )</td>
</tr>
<tr>
<td>Valence Before</td>
<td>6.54 (2.40)</td>
<td>6.57 (2.43)</td>
<td>6.36 (2.05)</td>
<td>5.90 (2.26)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; POS, ( p &lt; .05 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; IV, ( p &lt; .05 )</td>
</tr>
<tr>
<td>Valence After</td>
<td>6.11 (2.60)</td>
<td>5.93 (2.50)</td>
<td>5.89 (2.58)</td>
<td>5.16 (2.80)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; POS, ( p &lt; .01 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; IV, ( p &lt; .05 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; RV, ( p &lt; .05 )</td>
</tr>
</tbody>
</table>

On the basis of the above analyses, no empirical support was found for hypothesis eight. The results did not produce meaningful differences and suggest the arousal dimension of the Affect Grid did not serve as a valid measure of arousal for the present investigation. For the sake of completeness, post-hoc analyses were performed concerning reports of arousal before and after the main parts of the events transpired.
Post-hoc analyses For Hypothesis Eight:

A repeated measures ANOVA was calculated on participants’ responses to the arousal dimension of the Affect Grid in terms of their reported arousal levels before the main parts of each event transpired. The main test of within-subject effects was not significant (Mauchly’s W[9] = .90 [Chi-square = 5.83], p > .50; F[4, 220] = 1.47, p > .20). However, multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported to have been significantly more aroused before their acts of IV than before their SD experiences (see Table 15). The remaining comparisons were null (see Table 15). To increase the number of participants in the analysis, the aforementioned analysis was repeated and the LM events were excluded from the analysis. The main test of within-subject effects was not significant (Mauchly’s W[5] = .92 [Chi-square = 8.74], p > .10; F[3, 318] = 2.18, p > .05). However, multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported to have been significantly more aroused before their POS experiences and before their acts of IV than before their SD experiences (see Table 16). The remaining comparisons were null (see Table 16).

A repeated measures ANOVA was calculated on participants’ responses to the arousal dimension of the Affect Grid in terms of their reported arousal levels after the main parts of each event transpired. The main test of within-subject effects was not significant (Mauchly’s W[9] = .91 [Chi-square = 4.56], p > .50; F[4, 200] = 1.57, p > .10). However, multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported to have been significantly more aroused after the main parts of their acts of RV than after the main parts of their SD experiences (see Table 15).
The remaining comparisons were null (see Table 15). To increase the number of participants in the analyses, the aforementioned analysis was repeated and the LM events were excluded from the analysis. The main test of within-subject effects was significant (Mauchly's $W[5] = .97$ [$\chi^2 = 3.74$, $p > .50$; $F[3, 315] = 3.12$, $p < .05$]). Multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported to have been significantly more aroused after their POS experiences, after their acts of IV, and after their acts of RV than after their SD experiences (see Table 16). The remaining comparisons were null (see Table 16).

On the basis of the above analyses, no empirical support was found for hypothesis eight. In conjunction with the analyses for hypothesis eight, the post-hoc analyses did not produce any meaningful differences. This provides further evidence that the arousal dimension of the Affect Grid did not serve as a valid measure of arousal for the present investigation.

*Additional (Non-hypothesized) Analyses (Precipitating Factors)*:

The following sections involved analyses on precipitating factors that were discussed in the introduction but were not hypothesized. These include: (1) the association between arousal and memory; (2) the association between valence and memory; (3) valence comparisons between IV and RV; and (4) the frequency of substance abuse by type of event.

*Arousal and Memory*:

Although the arousal dimension of the Affect Grid did not likely serve as a valid measure of arousal for the present investigation, the following analyses were conducted for the sake of completeness. To explore the association between arousal and memory,
bivariate Pearson two-tailed correlations were performed on participants’ responses to the arousal dimension of the Affect Grid concerning reports of arousal during the main parts of each experience and the MCQ memory criterion variables for each event. As Table 17 shows, the correlations were not significant.

Table 17: Correlations Between Arousal and Memory

<table>
<thead>
<tr>
<th>Arousal During</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (POS)</td>
<td>$r = .15$</td>
<td>$r = .05$</td>
<td>$r = .15$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .05$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .05$</td>
</tr>
<tr>
<td>Instrumental Violence (IV)</td>
<td>$r = .11$</td>
<td>$r = .13$</td>
<td>$r = .12$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .20$</td>
<td>$p &gt; .10$</td>
<td>$p &gt; .10$</td>
</tr>
<tr>
<td>Reactive Violence (RV)</td>
<td>$r = .00$</td>
<td>$r = .10$</td>
<td>$r = .06$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .20$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Subjectively Disturbing (SD)</td>
<td>$r = .16$</td>
<td>$r = .02$</td>
<td>$r = .05$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .05$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Lack of Memory for Violence (LM)</td>
<td>$r = .04$</td>
<td>$r = .08$</td>
<td>$r = .09$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
</tbody>
</table>

The above analyses indicate participants’ reports of arousal during their experiences were not related to their reports of their memories for these experiences.

**Valence and Memory:**

To explore the association between valence and memory, bivariate Pearson two-tailed correlations were performed on participants’ responses to the valence dimension of the Affect Grid concerning reports of valence during the main parts of each experience and the MCQ memory criterion variables for each event. As Table 18 shows, participants’ reports of valence during their POS experiences were significantly associated with their reports of memory vividness but not with their reports of detail and overall memory. As well, participants’ reports of valence during their acts of IV were
Memory for Mayhem 93

significantly associated with their reports of memory vividness, detail, and overall memory. The remaining correlations were null (see Table 18).

Table 18: Correlations Between Valence and Memory

<table>
<thead>
<tr>
<th>Valence During</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (POS)</td>
<td>$r = .18$</td>
<td>$r = .05$</td>
<td>$r = .11$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .05$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .10$</td>
</tr>
<tr>
<td>Instrumental Violence (IV)</td>
<td>$r = .20$</td>
<td>$r = .25$</td>
<td>$r = .19$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .05$</td>
<td>$p &lt; .01$</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td>Reactive Violence (RV)</td>
<td>$r = .01$</td>
<td>$r = .05$</td>
<td>$r = .03$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Subjectively Disturbing (SD)</td>
<td>$r = -.02$</td>
<td>$r = .05$</td>
<td>$r = -.03$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Lack of Memory for Violence (LM)</td>
<td>$r = -.09$</td>
<td>$r = .03$</td>
<td>$r = -.03$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
</tbody>
</table>

The above analyses indicated reports of increased levels of positive valence were partially associated with reports of memory for POS experiences. Furthermore, increased levels of positive valence were significantly related to reports of memories for acts of IV but not acts of RV. Reports of valence did not affect memories for the SD or LM experiences.

Valence Between IV and RV:

To explore potential valence differences between acts of IV and RV, a paired samples t-test was calculated on participants’ responses to the valence dimension of the Affect Grid in terms of reports of valence during the main parts of these events. Participants reported significantly higher levels of positive valence regarding perpetrating IV ($X = 4.81; SD = 2.83$) in comparison to perpetrating RV ($X = 3.84; SD = 2.95$; $t[114] = 3.29, p < .005$).
Substance Use Across Event Type:

Table 19 illustrates the frequencies of participants' reports of whether they were 'under the influence' and/or intoxicated by type of event. Substance use was a common occurrence during all types of violent events with a relative higher frequency in the LM experiences.

Table 19: Frequency of Substance Use Across Event Type

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under the Influence</td>
<td>35.9%</td>
<td>59.2%</td>
<td>58.8%</td>
<td>25.9%</td>
<td>84.6%</td>
</tr>
<tr>
<td>Intoxicated</td>
<td>23.5%</td>
<td>42.3%</td>
<td>38.4%</td>
<td>22.3%</td>
<td>72.2%</td>
</tr>
</tbody>
</table>

Summary of Analyses of Precipitating Factors:

Partial or full empirical support was found for six of the eight previously proposed hypotheses on precipitating factors. Analyses for two hypotheses served as manipulation checks and indicate participants understood what was asked of them (i.e., in terms of providing positively valenced memories for the POS experiences; in terms of providing poorly recalled memories for violence). Other results demonstrated a number of precipitating factors were differentially associated with participants' provided events and with their memories for such events. Results indicated the type of event experienced (i.e., instrumental vs. reactive violence) influenced recall. Results also indicated state dissociation was more commonly experienced during violence and trauma than during POS experiences and that such a response had a negative effect on memory. As well, the perspective (i.e., field vs. observer) reported was related to other forms of state dissociation but not with memory.
In terms of the non-hypothesized analyses, reports of positive valence were partially associated with recall for POS experiences and fully associated with recall for acts of IV. Also, acts of IV were experienced with higher levels of positive valence in comparison to acts of RV. Finally, substance use was frequently associated with acts of perpetrated violence.

In the following sections, the analyses conducted for hypotheses nine through thirteen are presented. These analyses concerned perpetuating factors.

**Analyses for Hypothesis Nine (Perpetuating Factor: PTSD Symptoms By Event Type):**

It was hypothesized that participants would report significantly more PTSD symptoms in relation to their SD experiences in comparison to their acts of perpetrated violence. To evaluate this hypothesis, repeated measures ANOVAs were calculated on the participants' total IES scores, intrusion subscale scores (IES Intrusion items: 1, 4, 5, 6, 10, 11, 14), and avoidance subscale scores (IES Avoidance items: 2, 3, 7, 8, 9, 12, 13, 15) in relation to the IV, RV, SD, and LM events. The main tests of within-subject effects were significant (total IES: Mauchly's W[5] = .67 [Chi-square = 22.44], p < .001; Greenhouse-Geisser correction: F[2.34, 135.93] = 8.16, p < .001; intrusion subscale: Mauchly's W[5] = .60 [Chi-square = 28.90], p < .001; Greenhouse-Geisser correction: F[2.19, 126.80] = 9.43, p < .001; avoidance subscale: Mauchly's W[5] = .75 [Chi-square = 16.69], p < .01; Greenhouse-Geisser correction: F[2.54, 152.20] = 5.93, p < .005).

Multiple pairwise comparisons (utilizing Least Significant Difference) indicated SD events were associated with significantly higher IES total scores, intrusion subscale scores, and avoidance subscale scores in comparison to acts of IV, RV, and LM events (see Table 20). Total IES scores and intrusion subscale scores between the perpetrated
acts of violence did not significantly differ. Participants reported significantly more avoidance symptoms in relation to their LM events in comparison to their acts of RV (see Table 20). IES avoidance subscale scores between the perpetrated acts of violence did not significantly differ and avoidance symptoms did not significantly differ between the LM events and acts of IV.

Table 20: PTSD Symptom Comparisons by Event Type (IV, RV, SD, LM)

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Lack of Disturbing (SD)</th>
<th>Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IES Total Score</td>
<td>6.90 (12.81)</td>
<td>4.73 (12.21)</td>
<td>15.83 (22.54)</td>
<td>7.92 (13.20)</td>
</tr>
<tr>
<td>IES Intrusion Score</td>
<td>3.17 (6.34)</td>
<td>2.25 (5.46)</td>
<td>8.20 (11.57)</td>
<td>3.17 (5.63)</td>
</tr>
<tr>
<td>IES Avoidance Score</td>
<td>3.77 (7.28)</td>
<td>2.46 (7.10)</td>
<td>7.49 (11.48)</td>
<td>4.64 (7.93)</td>
</tr>
<tr>
<td>% With Total IES Scores at or Above 28</td>
<td>11.5%</td>
<td>8.8%</td>
<td>26.9%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

To increase the number of the participants in the analyses, the above analysis was repeated for only the SD events and acts of IV and RV. The tests of within-subject effects were significant (total IES: Mauchly’s W[2] = .86 [Chi-square = 16.39], p < .001; Greenhouse-Geisser correction: $F[1.75, 191.09] = 11.48, p < .001$; intrusion subscale: Mauchly’s W[2] = .88 [Chi-square = 13.48], p < .005; Greenhouse-Geisser correction: $F[1.79, 197.07] = 11.80, p < .001$; avoidance subscale: Mauchly’s W[2] = .89 [Chi-
square = 13.09], \( p < .005 \); Greenhouse-Geisser correction: \( F[1.80, 197.63] = 8.67, p < .001 \). Multiple pairwise comparisons (utilizing Least Significant Difference) indicated SD events were associated with significantly higher IES total scores, intrusion subscale scores, and avoidance subscale scores in comparison to acts of IV and RV (see Table 21). Total IES scores, intrusion subscale scores, and avoidance subscale scores between the acts of IV and RV did not significantly differ.

Table 21: PTSD Symptom Comparisons by Event Type (IV, RV, SD)

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IES Total Score</td>
<td>8.39 (15.05)</td>
<td>5.83 (13.24)</td>
<td>14.72 (21.81)</td>
</tr>
<tr>
<td></td>
<td>&gt; IV, ( p &lt; .005 )</td>
<td>&gt; RV, ( p &lt; .001 )</td>
<td></td>
</tr>
<tr>
<td>IES Intrusion Score</td>
<td>4.21 (8.03)</td>
<td>2.75 (6.41)</td>
<td>7.53 (11.07)</td>
</tr>
<tr>
<td></td>
<td>&gt; IV, ( p &lt; .005 )</td>
<td>&gt; RV, ( p &lt; .001 )</td>
<td></td>
</tr>
<tr>
<td>IES Avoidance Score</td>
<td>4.24 (7.89)</td>
<td>3.33 (7.84)</td>
<td>7.29 (11.29)</td>
</tr>
<tr>
<td></td>
<td>&gt; IV, ( p &lt; .01 )</td>
<td>&gt; RV, ( p &lt; .001 )</td>
<td></td>
</tr>
</tbody>
</table>

On the basis of the above analyses, full empirical support was found for hypothesis nine. That is, support was found for the hypothesis that SD events would be associated with significantly more total PTSD symptoms and intrusion and avoidance symptoms in comparison to acts of perpetrated violence.

Post-Hoc Analyses for Hypothesis Nine:

To examine extreme levels of PTSD symptoms by event type, participants with total IES scores at or higher than 28 were identified (i.e., extreme scorers). Table 20 shows the percentage of participants with extreme scores on the IES by type of event. Chi
square analyses were calculated on the total IES scores for the IV, RV, SD, and LM experiences for participants with extreme scores. There was a significant main effect ($x^2[3] = 21.19, p < .001$). As Table 20 illustrates, SD experiences were significantly more frequently associated with extreme IES scores in comparison to acts of IV and RV and the LM events ($x^2[1] = 22.75, p < .001$). The perpetrated acts of violence did not significantly differ in terms of the frequency of extreme IES scores ($x^2[2] = 2.24, p > .30$).

In conjunction with the analyses for hypothesis nine, the post-hoc analyses provides further evidence that SD events were associated with significantly more symptoms of PTSD than acts of perpetrated violence. Thus, full empirical support was found for hypothesis nine.

*Analyses for Hypothesis Ten (Perpetuating Factor: PTSD Symptoms: IV vs. RV):*

It was hypothesized that acts of RV would lead to significantly more PTSD symptoms in comparison to acts of IV. Although the main analyses for hypothesis nine was significant, multiple comparisons indicated acts of IV and RV did not significantly differ in terms of total IES scores, intrusion subscale scores, and avoidance subscale scores. To provide a direct comparison, the main analyses for hypothesis nine were repeated for only the acts of IV and RV. The test of within-subject effects were not significant (total IES: $F[1, 113] = 2.45, p > .10$; intrusion subscale: $F[1, 114] = 2.76, p > .05$; avoidance subscale: $F[1, 114] = .98, p > .30$). Thus, acts of IV and RV did not significantly differ in terms of total IES scores, intrusion subscale scores, and avoidance subscale scores (see Table 22).
Table 22: PTSD Symptom Comparisons Between IV and RV

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IES Total Score</td>
<td>8.14 (14.84)</td>
<td>5.83 (13.15)</td>
</tr>
<tr>
<td>IES Intrusion Score</td>
<td>4.07 (7.92)</td>
<td>2.73 (6.34)</td>
</tr>
<tr>
<td>IES Avoidance Score</td>
<td>4.13 (7.78)</td>
<td>3.35 (7.79)</td>
</tr>
</tbody>
</table>

As the post-hoc frequency analysis for hypothesis nine illustrated, the IV and RV experiences did not significantly differ in terms of extreme IES scores. No empirical support was found for hypothesis ten. That is, no support was found for the hypothesis that acts of RV would be associated with significantly more PTSD symptoms than acts of IV.

*Analyses for Hypothesis Eleven (Perpetuating Factor: Intrusion Symptoms):*

It was hypothesized that low levels of PTSD intrusion symptoms would be associated with significantly poorer memories compared to memories with high levels of PTSD intrusion symptoms. To evaluate this hypothesis, bivariate Pearson one-tailed correlations were calculated on the intrusion subscale scores of the IES and the MCQ memory criterion variables for each event, except for the POS experience. As shown in Table 23, in terms of acts of IV, IES intrusion symptoms were not significantly correlated with memory vividness, detail, or overall memory. Regarding acts of RV, IES intrusion symptoms were significantly correlated with memory vividness, detail, and overall memory. Concerning SD experiences, IES intrusion symptoms were significantly correlated with memory vividness, detail, and overall memory. In regards to the LM
experiences, IES intrusion symptoms were not significantly correlated with memory vividness, detail, or overall memory (see Table 23).

Table 23: Correlations Between Memory and PTSD Intrusion Symptoms

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Memory (MCQ 33)</td>
<td>( r = .15 ) ( p &gt; .05 )</td>
<td>( r = .21 ) ( p &lt; .01 )</td>
<td>( r = .24 ) ( p &lt; .005 )</td>
<td>( r = .15 ) ( p &gt; .05 )</td>
</tr>
<tr>
<td>Vividness (MCQ 8)</td>
<td>( r = .04 ) ( p &gt; .30 )</td>
<td>( r = .15 ) ( p &lt; .05 )</td>
<td>( r = .14 ) ( p &lt; .05 )</td>
<td>( r = .03 ) ( p &gt; .30 )</td>
</tr>
<tr>
<td>Detail (MCQ 9)</td>
<td>( r = .04 ) ( p &gt; .30 )</td>
<td>( r = .18 ) ( p &lt; .025 )</td>
<td>( r = .19 ) ( p &lt; .025 )</td>
<td>( r = .06 ) ( p &gt; .20 )</td>
</tr>
</tbody>
</table>

Post-hoc Analyses For Hypothesis Eleven:

Post-hoc analyses examined the association between intrusion symptoms and memory in extreme and non-extreme IES scorers (see Appendix 10c). None of the correlations were significant.

On the basis of the above analyses, partial empirical support was found for hypothesis eleven. That is, PTSD intrusion symptoms were significantly associated with memory for acts of RV and the SD experiences but not with memory for acts of IV or the LM experiences.

Analyses for Hypothesis Twelve (Perpetuating Factor: Avoidance Symptoms):

It was hypothesized that high levels of PTSD avoidance symptoms would be associated with significantly poorer memories in comparison to memories with low levels of PTSD avoidance symptoms. To evaluate this hypothesis, bivariate Pearson one-tailed correlations were calculated on the avoidance subscale scores of the IES and the MCQ memory criterion variables for each event, save for the POS experiences (see Table 24).
In terms of acts of IV, IES avoidance symptoms were not significantly correlated with memory vividness, detail, or overall memory. Regarding acts of RV, IES avoidance symptoms were significantly correlated with overall memory, but not with memory vividness or detail. Concerning SD experiences, IES avoidance symptoms were significantly correlated with detail and overall memory but not with memory vividness. In regards to the LM experiences, IES avoidance symptoms were not significantly correlated with memory vividness, detail, or overall memory.

Table 24: Correlations Between Memory and PTSD Avoidance Symptoms

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Memory (MCQ 33)</td>
<td>r = .10</td>
<td>r = .16</td>
<td>r = .20</td>
<td>r = .09</td>
</tr>
<tr>
<td></td>
<td>p &gt; .10</td>
<td>p &lt; .05</td>
<td>p &lt; .01</td>
<td>p &gt; .20</td>
</tr>
<tr>
<td>Vividness (MCQ 8)</td>
<td>r = -.02</td>
<td>r = .12</td>
<td>r = .11</td>
<td>r = -.02</td>
</tr>
<tr>
<td></td>
<td>p &gt; .40</td>
<td>p &gt; .05</td>
<td>p &gt; .10</td>
<td>p &gt; .40</td>
</tr>
<tr>
<td>Detail (MCQ 9)</td>
<td>r = -.01</td>
<td>r = .13</td>
<td>r = .16</td>
<td>r = .03</td>
</tr>
<tr>
<td></td>
<td>p &gt; .40</td>
<td>p &gt; .05</td>
<td>p &lt; .025</td>
<td>p &gt; .40</td>
</tr>
</tbody>
</table>

On the basis of the above analyses, no empirical support was found for the hypothesis that increased reports of PTSD avoidance symptoms would be negatively associated with recall. In fact, increased reports of PTSD avoidance symptoms were positively marginally associated with one memory criterion variable for acts of RV and positively marginally associated with two memory criterion variables for SD experiences.

Post-hoc Analyses for Hypothesis Twelve:

Post-hoc analyses examined the association between avoidance symptoms and memory in extreme and non-extreme IES scorers (see Appendix 10d). The results were null. On the basis of the post-hoc analyses, no empirical support was found for hypothesis
twelve. That is, no support was found for the hypothesis that increased reports of PTSD avoidance symptoms would be negatively associated with memory.

The following results involved correlational analyses concerning the associations between total IES scores and memory and the intercorrelations of the IES subscale scores and total scores for each event.

*Additional Analyses (Perpetuating Factor: PTSD Symptoms):*

To examine the association between total PTSD symptoms and memory, bivariate Pearson two-tailed correlations were conducted on the total IES scores for each event and the MCQ memory criterion variables for each event, save for the POS experiences. Participants’ reports of PTSD symptoms in relation to their acts of IV were not associated with their memory for such acts (vividness: $r = .01, p > .50$; detail: $r = .02, p > .50$; overall memory: $r = .13, p > .10$). Participants’ reports of PTSD symptoms in relation to their acts of RV were partially associated with their memory for such acts (vividness: $r = .12, p > .10$; detail: $r = .15, p > .05$; overall memory: $r = .18, p < .05$). Participants’ reports of PTSD symptoms in relation to their SD experiences were partially associated with their memory for such experiences (vividness: $r = .13, p > .10$; detail: $r = .18, p < .05$; overall memory: $r = .23, p < .01$). Participants’ reports of PTSD symptoms in relation to their LM experiences were not associated with their memory for such experiences (vividness: $r = -.01, p > .50$; MCQ 9: $r = .03, p > .50$; overall memory: $r = .11, p > .30$).

To examine the intercorrelations of the IES subscales scores and total scores, bivariate Pearson two-tailed correlations were conducted on the total IES scores and subscale scores for each event, save for the POS experiences. In terms of acts of IV, IES
intrusion and avoidance subscale scores were significantly related \( (r = .77, p < .001) \) and both intrusion \( (r = .94, p < .001) \) and avoidance subscale scores \( (r = .94, p < .001) \) were significantly related to the total IES scores. In regards to acts of RV, IES intrusion and avoidance subscale scores were significantly related \( (r = .88, p < .001) \) and both intrusion \( (r = .96, p < .001) \) and avoidance subscale scores \( (r = .98, p < .001) \) were significantly related to the total IES scores. Concerning SD experiences, IES intrusion and avoidance subscale scores were significantly related \( (r = .91, p < .001) \) and both intrusion \( (r = .97, p < .001) \) and avoidance subscale scores \( (r = .98, p < .001) \) were significantly related to the total IES scores. Regarding the LM experiences, the IES intrusion and avoidance subscale scores were significantly related \( (r = .83, p < .001) \) and both intrusion \( (r = .94, p < .001) \) and avoidance subscale scores \( (r = .97, p < .001) \) were significantly related to the total IES scores.

**Summary of Analyses Concerning PTSD Symptoms and Memory:**

When the entire sample was examined, the strongest correlations between PTSD symptoms and memory concerned the associations between recall and intrusion symptoms followed by recall and total symptom scores followed by recall and avoidance symptoms. This pattern of results indicates the IES total scores and subscale scores were differentially associated with recall, depending on the type of event. Increased reports of PTSD symptoms were partially associated with better memory for acts of RV and SD experiences but not with better memory for acts of IV or the LM experiences.

**Analyses for Hypothesis Thirteen (Perpetuating Factor: Recall History):**

It was hypothesized that all types of memories would be recalled significantly better when participants had rehearsed them a considerable number of times in
comparison to when they had not rehearsed them at all or only a few times. To evaluate this hypothesis, bivariate Pearson one-tailed correlations were calculated on the mean number of prior rehearsals and the MCQ memory criterion variables for all events. Prior rehearsals were calculated from the open-ended interview question and from MCQ item 38 (number of times talked about ranging from 1-7). As shown in Table 25, the two measures of prior rehearsal were significantly correlated (two-tailed) for all memory types.

As Table 26 shows, the number of prior rehearsals as assessed by MCQ item 38 was significantly correlated with memory vividness, detail, and overall memory for the POS experiences. The number of prior rehearsals from open-ended interview questions was significantly correlated with memory vividness, but not with detail or overall memory.

Table 25: Correlations Between Two Measures of Prior Rehearsal

<table>
<thead>
<tr>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview Question</td>
<td>Interview Question</td>
<td>Interview Question</td>
<td>Interview Question</td>
<td>Interview Question</td>
</tr>
<tr>
<td>MCQ 38</td>
<td>$r = .27$</td>
<td>$r = .28$</td>
<td>$r = .30$</td>
<td>$r = .31$</td>
</tr>
<tr>
<td>$p &lt; .01$</td>
<td>$p &lt; .025$</td>
<td>$p &lt; .01$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
</tr>
</tbody>
</table>

Table 26: Correlations Between Rehearsal and Memory for POS Events

<table>
<thead>
<tr>
<th>MCQ 38 (Rehearsal)</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r = .17$</td>
<td>$r = .23$</td>
<td>$r = .25$</td>
<td></td>
</tr>
<tr>
<td>$p &lt; .05$</td>
<td>$p &lt; .005$</td>
<td>$p &lt; .005$</td>
<td></td>
</tr>
<tr>
<td>Interview Question</td>
<td>$r = .15$</td>
<td>$r = .12$</td>
<td>$r = .13$</td>
</tr>
<tr>
<td>$p &lt; .05$</td>
<td>$p &gt; .05$</td>
<td>$p &gt; .05$</td>
<td></td>
</tr>
</tbody>
</table>
As illustrated in Table 27, the number of prior rehearsals as assessed by MCQ item 38 was significantly correlated with memory vividness, detail, and overall memory for the acts of IV. The number of prior rehearsals from open-ended interview questions was not significantly correlated with memory vividness, detail, or overall memory.

Table 27: Correlations Between Rehearsal and Memory for IV Events

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCQ 38 (Rehearsal)</td>
<td>( r = .17 )</td>
<td>( r = .16 )</td>
<td>( r = .18 )</td>
</tr>
<tr>
<td>( p &lt; .05 )</td>
<td>( p &lt; .05 )</td>
<td>( p &lt; .025 )</td>
<td></td>
</tr>
<tr>
<td>Interview Question</td>
<td>( r = .00 )</td>
<td>( r = .22 )</td>
<td>( r = .04 )</td>
</tr>
<tr>
<td>( p &gt; .40 )</td>
<td>( p &gt; .40 )</td>
<td>( p &gt; .30 )</td>
<td></td>
</tr>
</tbody>
</table>

As presented in Table 28, the number of prior rehearsals as assessed by MCQ item 38 was significantly correlated with memory vividness, detail, and overall memory for the acts of RV. The number of prior rehearsals from open-ended interview questions was significantly correlated with memory vividness and detail but not with overall memory.

Table 28: Correlations Between Rehearsal and Memory for RV Events

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCQ 38 (Rehearsal)</td>
<td>( r = .24 )</td>
<td>( r = .18 )</td>
<td>( r = .14 )</td>
</tr>
<tr>
<td>( p &lt; .005 )</td>
<td>( p &lt; .025 )</td>
<td>( p &lt; .05 )</td>
<td></td>
</tr>
<tr>
<td>Interview Question</td>
<td>( r = .17 )</td>
<td>( r = .17 )</td>
<td>( r = .12 )</td>
</tr>
<tr>
<td>( p &lt; .05 )</td>
<td>( p &lt; .025 )</td>
<td>( p &gt; .05 )</td>
<td></td>
</tr>
</tbody>
</table>

As Table 29 presents, the number of prior rehearsals as assessed by both MCQ item 38 and the open-ended interview questions were significantly correlated with overall memory, but not with memory vividness or detail for the SD experiences.
Table 29: Correlations Between Rehearsal and Memory for SD Events

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCQ 38 (Rehearsal)</td>
<td>$r = .05$</td>
<td>$r = .12$</td>
<td>$r = .15$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .20$</td>
<td>$p &gt; .05$</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td>Interview Question</td>
<td>$r = .08$</td>
<td>$r = .11$</td>
<td>$r = .17$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .05$</td>
<td>$p &gt; .10$</td>
<td>$p &lt; .05$</td>
</tr>
</tbody>
</table>

As Table 30 shows, the number of prior rehearsals as assessed by both MCQ item 38 and the open-ended interview question were not significantly correlated with memory vividness, detail, or overall memory for the LM experiences. However, the pattern of results is consistent with the results found for the other memories, suggesting rehearsal is associated with improved recall.

Table 30: Correlations Between Rehearsal and Memory for LM Events

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCQ 38 (Rehearsal)</td>
<td>$r = -.01$</td>
<td>$r = .11$</td>
<td>$r = .13$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .40$</td>
<td>$p &gt; .10$</td>
<td>$p &gt; .10$</td>
</tr>
<tr>
<td>Interview Question</td>
<td>$r = -.05$</td>
<td>$r = -.05$</td>
<td>$r = -.05$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .30$</td>
<td>$p &gt; .30$</td>
<td>$p &gt; .30$</td>
</tr>
</tbody>
</table>

*Post-hoc Analyses for Hypothesis Thirteen:*

Post-hoc analyses examined the effects of extreme rehearsal on memory (see Appendix 10e). Extreme rehearsal was partially associated with better memory for all experiences, save for the LM experiences. As with the analyses on the LM memories for hypothesis thirteen, the pattern of results is consistent with the results found for the other memories, suggesting rehearsal is associated with improved recall.

On the basis of the above analyses, empirical support was found for hypothesis thirteen. That is, support was found for the hypothesis that increased reports of rehearsal
Memory for Mayhem 107

would be associated with recall. MCQ item 38 was more strongly associated with memory than participants’ open-ended responses to the interview question querying about their recall history. Overall, results indicated increased reports of rehearsal were partially associated with better memory.

Summary of Analyses of Perpetuating Factors:

Partial or full empirical support was found for three of the hypotheses on perpetuating factors. Results indicated the development of PTSD symptoms was differentially associated with the nature of the precipitating event. Participants reported more total PTSD symptoms in relation to their SD experiences in comparison to their perpetrated acts of violence with no differences between the types of perpetrated violence. Also, increased reports of PTSD symptoms were partially associated with better memory for acts of RV and SD experiences but not with better memory for acts of IV or the LM experiences. The correlations between PTSD symptoms and the memory criterion variables were slightly higher, and more often significant, when intrusion symptoms were examined indicating intrusion symptoms, more so than avoidance symptoms, affect memory in a facilitative manner. Participants’ reports of rehearsal were partially associated with better memory.

In the following sections, the analyses conducted for hypotheses fourteen through twenty-one are presented. These analyses concerned predisposing factors.

Analyses for Hypothesis Fourteen (Predisposing Factor: Trait Dissociation):

It was hypothesized that participants with high dissociative dispositions would have significantly poorer memories compared to participants with low trait dissociative dispositions. To evaluate this hypothesis, bivariate Pearson one-tailed correlations were
calculated on participants' total DES scores and the MCQ memory criterion variables for each event. As illustrated in Table 31, the only significant negative correlations were between total DES scores and memory vividness and detail for the SD events.

Table 31: Correlations Between Trait Dissociation and Memory

<table>
<thead>
<tr>
<th>Total DES Score</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
</table>
| Positive (POS)        | \begin{align*} r & = .08 \\
|                       | p & > .10         \end{align*} | \begin{align*} r & = .05 \\
|                       | p & > .20         \end{align*} | \begin{align*} r & = .07 \\
|                       | p & < .20         \end{align*} |
| Instrumental Violence (IV) | \begin{align*} r & = -.05 \\
|                       | p & > .20         \end{align*} | \begin{align*} r & = -.05 \\
|                       | p & > .30         \end{align*} | \begin{align*} r & = -.05 \\
|                       | p & > .20         \end{align*} |
| Reactive Violence (RV) | \begin{align*} r & = .06 \\
|                       | p & > .20         \end{align*} | \begin{align*} r & = -.03 \\
|                       | p & > .30         \end{align*} | \begin{align*} r & = -.02 \\
|                       | p & > .40         \end{align*} |
| Subjectively Disturbing (SD) | \begin{align*} r & = -.19 \\
|                       | p & < .025        \end{align*} | \begin{align*} r & = -.17 \\
|                       | p & < .025        \end{align*} | \begin{align*} r & = -.10 \\
|                       | p & > .10         \end{align*} |
| Lack of Memory for Violence (LM) | \begin{align*} r & = .03 \\
|                       | p & > .30         \end{align*} | \begin{align*} r & = -.06 \\
|                       | p & > .20         \end{align*} | \begin{align*} r & = .09 \\
|                       | p & > .20         \end{align*} |

To explore the association between extreme levels of trait dissociation and memory, participants were dichotomized into two extreme groups based on their total DES scores (i.e., participants at or below the 25\textsuperscript{th} percentile [low dissociators] and participants at or above the 75\textsuperscript{th} percentile [high dissociators]). Independent samples t-tests were performed on the MCQ memory criterion variables for each event as a function of extreme trait dissociation scores. The mean DES score was 13.59 (SD = 12.52; range = .36 – 100) and participants at the 25\textsuperscript{th} and 75\textsuperscript{th} percentiles had mean scores on the DES of 5.98 and 17.50, respectively.

Participants with high dissociative dispositions did not have significantly poorer memories for their POS experiences than participants with low dissociative dispositions (vividness: \( t[70] = .62, p > .50 \); detail: \( t[70] = .63, p > .50 \); overall memory: \( t[70] = .94, p > .30 \); see Table 32).
Table 32: POS Memory Comparisons as a Function of Extreme Trait Dissociation

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>75th Percentile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DES</td>
<td>5.70 (1.29)</td>
<td>5.62 (1.42)</td>
<td>6.05 (1.13)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .30$</td>
</tr>
<tr>
<td><strong>25th Percentile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DES</td>
<td>5.51 (1.29)</td>
<td>5.43 (1.15)</td>
<td>5.77 (1.42)</td>
</tr>
</tbody>
</table>

Participants with high dissociative dispositions did not have significantly poorer memories for acts of IV than participants with low dissociative dispositions (vividness: $t[57] = .36, p > .50$; detail: $t[57] = .22, p > .50$; overall memory: $t[57] = 50., p > .50$; see Table 33).

Table 33: IV Memory Comparisons as a Function of Extreme Trait Dissociation

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>75th Percentile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DES</td>
<td>5.21 (1.68)</td>
<td>5.31 (1.71)</td>
<td>5.55 (1.35)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td><strong>25th Percentile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DES</td>
<td>5.37 (1.75)</td>
<td>5.40 (1.45)</td>
<td>5.73 (1.41)</td>
</tr>
</tbody>
</table>

Participants with high dissociative dispositions did not have significantly poorer memories for acts of RV than participants with low dissociative dispositions (vividness: $(t[67] = .16, p > .50$; detail: $(t[67] = .64, p > .50$; overall memory: $t[67] = .21, p > .50$; see Table 34).

Table 34: RV Memory Comparisons as a Function of Extreme Trait Dissociation

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>75th Percentile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DES</td>
<td>5.03 (1.53)</td>
<td>5.12 (1.41)</td>
<td>5.26 (1.71)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td><strong>25th Percentile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DES</td>
<td>4.97 (1.54)</td>
<td>5.34 (1.51)</td>
<td>5.34 (1.43)</td>
</tr>
</tbody>
</table>
Participants with high dissociative disposition did not have significantly poorer memories for SD experiences based on reports of memory vividness ($t[72] = 1.91, p > .05$) or overall memory (Levene’s Test: $F = 5.40, p < .025$; $t[69.08] = 1.87, p > .05$) than participants with low dissociative dispositions. However, participants with high dissociative dispositions had significantly poorer memories than participants with low dissociative dispositions based on reports of memory detail ($t[72] = 2.22, p < .05$; see Table 35).

Table 35: SD Memory Comparisons as a Function of Extreme Trait Dissociation

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75th Percentile DES</td>
<td>4.95 (1.52)</td>
<td>4.92 (1.50)</td>
<td>5.45 (1.43)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .05$</td>
<td>$p &lt; .05$</td>
<td>$p &gt; .05$</td>
</tr>
<tr>
<td>25th Percentile DES</td>
<td>5.56 (1.18)</td>
<td>5.64 (1.27)</td>
<td>6.00 (1.10)</td>
</tr>
</tbody>
</table>

Participants with high dissociative dispositions did not have significantly poorer memories for LM events than participants with low dissociative dispositions (vividness: $t[43] = 0, p > .50$; detail: $t[42] = .46, p > .50$; overall memory: $t[43] = .53, p > .50$; see Table 36).

Table 36: LM Memory Comparisons as a Function of Extreme Trait Dissociation

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75th Percentile DES</td>
<td>3.00 (1.89)</td>
<td>2.80 (1.53)</td>
<td>2.84 (1.91)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>25th Percentile DES</td>
<td>3.00 (2.10)</td>
<td>3.05 (2.12)</td>
<td>3.15 (2.01)</td>
</tr>
</tbody>
</table>
On the basis of the above analyses, partial empirical support was found for hypothesis fourteen. That is, partial support was found for the hypothesis that trait dissociation would be negatively associated with recall. Trait dissociation was partially negatively associated with recall for the SD experiences but not with the other four types of experiences.

*Post-hoc Analyses for Hypothesis Fourteen:*

Post-hoc analyses explored the association between trait dissociation and claims of amnesia by event type (see Appendix 10f). The analyses indicated, depending on the condition (i.e., liberal or conservative definition of amnesia), reports of increased levels of trait dissociation were associated with claims of amnesia for acts of the IV and RV and the SD experiences. In terms of the other two events, the mean trait dissociation differences were in the expected direction. On the basis of the post-hoc analyses, partial empirical support was found for hypothesis fourteen. Together with the analyses for hypothesis fourteen, the post-hoc analyses provide converging evidence that reports of increased levels of trait dissociation were negatively associated with recall, depending on the type of event.

*Analyses for Hypothesis Fifteen (Predisposing Factor: Personality):*

The analyses for hypothesis fifteen concerned the participants' responses to the BFI-44S. Table 37 illustrates participants' mean raw and computed BFI-44S factor scores and Table 38 shows the two-tailed intercorrelations between the factors.
Table 37: Raw and Computed Big Five Factor Scores

<table>
<thead>
<tr>
<th></th>
<th>Extraversion</th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
<th>Openness</th>
<th>Neuroticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw</td>
<td>26.71</td>
<td>32.33</td>
<td>32.96</td>
<td>36.81</td>
<td>22.02</td>
</tr>
<tr>
<td></td>
<td>(4.25)</td>
<td>(5.20)</td>
<td>(5.08)</td>
<td>(5.34)</td>
<td>(5.26)</td>
</tr>
<tr>
<td>Computed</td>
<td>3.34</td>
<td>3.59</td>
<td>3.66</td>
<td>3.68</td>
<td>2.75</td>
</tr>
<tr>
<td></td>
<td>(.53)</td>
<td>(.58)</td>
<td>(.56)</td>
<td>(.53)</td>
<td>(.66)</td>
</tr>
</tbody>
</table>

Table 38: Intercorrelations Between Big Five Factor Scores

<table>
<thead>
<tr>
<th></th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
<th>Openness</th>
<th>Neuroticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$r = .14$</td>
<td>$r = .41$</td>
<td>$r = .41$</td>
<td>$r = -.32$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .05$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>$r = .29$</td>
<td></td>
<td>$r = .20$</td>
<td>$r = -.25$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .001$</td>
<td></td>
<td>$p &lt; .025$</td>
<td>$p &lt; .005$</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$r = .34$</td>
<td></td>
<td></td>
<td>$r = -.43$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .001$</td>
<td></td>
<td></td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Openness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$r = -.21$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$p &lt; .025$</td>
</tr>
</tbody>
</table>

It was hypothesized that, compared to participants who would not report LMs, participants who would report LMs would be significantly more introverted. To evaluate this hypothesis, participants were dichotomized into two groups based on whether or not they provided LMs. Fifty-five percent of the sample ($n = 82$) provided LMs. Independent samples t-tests were calculated on the extraversion factor of the BFI-44S as a function of LM status (yes/no). Participants who provided LMs were not significantly more introverted than participants who did not provide such an experience based on their raw and computed extraversion scores (raw: $t[145] = 1.56, p > .10$; see Table 39; computed: $t[145] = 1.56, p > .10$; see Table 40).
Table 39: Raw Big Five Factor Score Comparisons as a Function of LM Status

<table>
<thead>
<tr>
<th></th>
<th>Extraversion</th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
<th>Openness</th>
<th>Neuroticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>LM</td>
<td>26.22 (3.96)</td>
<td>31.43 (5.34)</td>
<td>32.14 (4.80)</td>
<td>36.47 (4.77)</td>
<td>22.86 (4.90)</td>
</tr>
<tr>
<td></td>
<td>p &gt; .10</td>
<td>p &lt; .025</td>
<td>p &lt; .05</td>
<td>p &gt; .30</td>
<td>p &lt; .05</td>
</tr>
<tr>
<td>No LM</td>
<td>27.32 (4.55)</td>
<td>33.44 (4.84)</td>
<td>33.97 (5.27)</td>
<td>37.23 (5.98)</td>
<td>20.98 (5.53)</td>
</tr>
</tbody>
</table>

Table 40: Computed Big Five Factor Score Comparisons as a Function of LM Status

<table>
<thead>
<tr>
<th></th>
<th>Extraversion</th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
<th>Openness</th>
<th>Neuroticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>LM</td>
<td>3.28 (.49)</td>
<td>3.49 (.59)</td>
<td>3.57 (.53)</td>
<td>3.65 (.48)</td>
<td>2.86 (.61)</td>
</tr>
<tr>
<td></td>
<td>p &gt; .10</td>
<td>p &lt; .025</td>
<td>p &lt; .05</td>
<td>p &gt; .30</td>
<td>p &lt; .05</td>
</tr>
<tr>
<td>No LM</td>
<td>3.41 (.57)</td>
<td>3.72 (.54)</td>
<td>3.77 (.59)</td>
<td>3.72 (.60)</td>
<td>2.62 (.69)</td>
</tr>
</tbody>
</table>

Post-hoc Analyses for Hypothesis Fifteen:

Post-hoc analyses compared participants who provided LMs with participants who did not in terms of the other four Big Five-Factor personality characteristics.

Participants who provided LMs were significantly less agreeable than participants who did not provide LMs based on their raw and computed agreeableness scores (raw: \( t[145] = 2.36, p < .025 \); see Table 39; computed: \( t[145] = 2.36, p < .025 \); see Table 40).

Participants who provided LMs were significantly less conscientious than participants who did not provide LMs based on their raw and computed conscientiousness scores, (raw: \( t[145] = 2.20, p < .05 \); see Table 39; computed: \( t[145] = 2.20, p < .05 \); see Table 40). Participants who provided LMs did not significantly differ from participants who did not provide LMs based on their raw and computed openness scores (raw: Levene’s test: \( F = 4.65, p < .05 \); \( t[122.91] = .84, p > .30 \); see Table 39; computed: Levene’s test: \( F = 4.65, p < .05 \); \( t[122.91] = .84, p > .30 \); see Table 40). Participants who provided LMs
were significantly more neurotic than participants who did not provide LMs based on their raw and computed neuroticism scores (raw: \( t[145] = 2.18, p < .05 \); see Table 39; computed: \( t[145] = 2.18, p < .05 \); see Table 40).

On the basis of the above analyses, no empirical support was found for hypothesis fifteen. That is, introversion was not associated with participants’ capacity to provide LMs. However, other personality characteristics were shown to be associated with the LM experiences.

Analyses for Hypothesis Sixteen (Predisposing Factor: Psychopathy):

The analyses for hypotheses 16 through 21 concerned participants’ scores on the PCL-R. PCL-R information was available for 135 (90%) of the 150 participants. The suggested North American cut-off of 30 (i.e., \( \geq 29.5 \)) for psychopathy was utilized. For 18 participants, two PCL-R ratings were available in their correctional files. A bivariate Pearson one-tailed correlation indicated the two rating of the total percentile scores were significantly associated \( (r = .59, p < .01) \).

Psychopathy Demographics:

The mean PCL-R score for the 135 participants with PCL-R information was 26.45 \( (SD = 6.64; \text{range: } 8.4 - 36; X \text{ total percentile score: } 61.81, SD = 26.68; \text{range: } 4.9 - 98) \) and 39.3% met the diagnostic criteria for psychopathy. The mean Factor one score was 9.47 \( (SD = 3.68; \text{range: } 0 - 16; X \text{ Factor one percentile score: } 56.95, SD = 27.60; \text{range: } 1.2 - 100) \) and the mean Factor two score was 13.03 \( (SD = 3.09; \text{range: } 1 - 18; X \text{ Factor two percentile score: } 63.70, SD = 26.27; \text{range: } 1 - 100) \). Table 41 illustrates the psychopathy demographics as a function of psychopathy status.
To evaluate hypotheses 16 through 21, participants were dichotomized into psychopathic and nonpsychopathic groups based on their PCL-R scores. It was hypothesized that, out of the participants who would report LMs, significantly more of them would be nonpsychopathic than psychopathic. To evaluate this hypothesis, the psychopathy status of the participants who did and did not provide LMs were examined. In terms of the nonpsychopathic participants, 58.5% reported LMs and 41.5% did not report LMs. In regards to the psychopathic participants, 50% reported LMs and 50% did not report LMs. A Chi square analysis indicated nonpsychopathic participants did not significantly differ from psychopathic participants in terms of whether or not they provided LMs ($\chi^2 [1] = .96, p > .30$).

On the basis of the above analyses, no support was found for the hypothesis that psychopathic participants would be less likely than nonpsychopathic participants to report LMs.

**Analyses for Hypothesis Seventeen (Predisposing Factor: Psychopathy and Dissociation):**

It was hypothesized that psychopathic participants would dissociate significantly less during their experiences as compared to nonpsychopathic participants. To examine
this hypothesis, independent-samples t-tests were performed on the total PDEQ scores for each memory as a function of psychopathy status. For all events, psychopathic participants did not significantly differ from nonpsychopathic participants in terms of reported levels of state dissociation (POS: $t[130] = .48, p > .50$; IV: $t[109] = .89, p > .30$; RV: $t[124] = .57, p > .50$; SD: $t[127] = .95, p > .30$; LM: $t[67] = 1.67, p > .05$; see Table 42).

Table 42: State Dissociation Comparisons by Event Type as a Function of Psychopathy

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Psychopaths</th>
<th>Nonpsychopaths</th>
<th>Post-hoc Analyses for Hypothesis Seventeen:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive (POS)</td>
<td>Instrumental Violence (IV)</td>
<td>Reactive Violence (RV)</td>
</tr>
<tr>
<td>Psychopaths</td>
<td>2.89 (3.66)</td>
<td>3.59 (3.68)</td>
<td>4.06 (4.10)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .30$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Nonpsychopaths</td>
<td>2.62 (2.78)</td>
<td>4.31 (4.40)</td>
<td>4.48 (4.10)</td>
</tr>
</tbody>
</table>

Post-hoc Analyses for Hypothesis Seventeen:

To explore the association between trait dissociation and psychopathy, an independent samples t-test was calculated on participants’ total DES scores as a function of psychopathy status. The psychopathic participants ($X = 11.96; SD = 9.41$) did not significantly differ from the nonpsychopathic participants ($X = 13.93; SD = 13.57$) in terms of mean DES scores ($t[130] = .91, p > .30$).

On the basis of the above analyses, no empirical support was found for the hypothesis that psychopathy and dissociation would be negatively associated.

Analyses for Hypothesis Eighteen (Predisposing Factor: Psychopathy and Arousal):

It was hypothesized that psychopathic participants would report significantly lower levels of arousal during events than nonpsychopathic participants. To evaluate this
hypothesis, independent samples t-tests were performed on participants’ responses to the arousal dimension of the Affect Grid during each event as a function of psychopathy status. Psychopathic participants did not significantly differ from nonpsychopathic participants in terms of their reported levels of arousal during all experiences (POS: \( t[130] = .06, p > .50; \) IV: \( t[109] = 1.02, p > .30; \) RV: \( t[124] = .87, p > .30; \) SD: \( t[129] = .51, p > .50; \) LM: \( t[54] = .36, p > .50; \) see Table 43).

Table 43: Arousal Comparisons by Event Type as a Function of Psychopathy

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychopaths</td>
<td>7.32 (2.17)</td>
<td>8.20 (1.35)</td>
<td>7.98 (1.45)</td>
<td>6.56 (2.84)</td>
<td>7.86 (1.49)</td>
</tr>
<tr>
<td></td>
<td>( p &gt; .50 )</td>
<td>( p &gt; .30 )</td>
<td>( p &gt; .30 )</td>
<td>( p &gt; .50 )</td>
<td>( p &gt; .50 )</td>
</tr>
<tr>
<td>Nonpsychopaths</td>
<td>7.34 (1.86)</td>
<td>7.91 (1.44)</td>
<td>7.72 (1.78)</td>
<td>6.80 (2.54)</td>
<td>8.00 (1.39)</td>
</tr>
</tbody>
</table>

On the basis of the aforementioned analyses, no support was found for the hypothesis that psychopathic participants would report significantly lower levels of arousal during their experiences as compared to nonpsychopathic participants.

Analyses for Hypothesis Nineteen (Predisposing Factor: Psychopathy and PTSD):

It was hypothesized that nonpsychopathic participants would report significantly more PTSD symptoms concerning their provided experiences compared to psychopathic participants. To evaluate this hypothesis, independent samples t-tests were calculated on participants’ total IES scores for the IV, RV, SD, and LM experiences as a function of psychopathy status. Psychopathic participants reported significantly less total PTSD symptoms than nonpsychopathic participants concerning their acts of IV (Levene’s test: \( F = 11.97, p < .01; t[108.97] = 2.67, p < .01; \) see Table 44). Psychopathic participants did
not differ significantly from nonpsychopathic participants concerning their reported levels of PTSD symptoms for the acts of RV ($t[123] = .62, p > .50$), for their SD experiences ($t[129] = .15, p > .50$), or for their LM experiences ($t[70] = .08, p > .50$; see Table 44).

**Table 44: PTSD Symptom Comparisons by Event Type as a Function of Psychopathy**

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychopaths</td>
<td>3.59 (9.46)</td>
<td>7.68 (16.37)</td>
<td>15.04 (23.23)</td>
<td>10.48 (18.81)</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .01$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Nonpsychopaths</td>
<td>10.03 (15.94)</td>
<td>6.05 (12.72)</td>
<td>15.63 (21.54)</td>
<td>10.19 (13.47)</td>
</tr>
</tbody>
</table>

*Post-hoc Analyses for Hypothesis Nineteen:*

To explore the association between psychopathy and valence during events, independent samples t-tests were calculated on participants’ responses to the valence dimension of Affect Grid during all of their provided experiences (save for the POS experience) as a function of psychopathy status. Psychopathic participants reported significantly higher levels of positive valence than nonpsychopathic participants concerning acts of IV ($t[109] = 2.33, p < .025$; see Table 45). Psychopathic participants did not significantly differ from nonpsychopathic participants regarding reported levels of valence during acts of RV ($t[124] = .35, p > .50$), during SD experiences ($t[129] = .58, p > .50$) or during LM experiences ($t[54] = 1.38, p > .10$; see Table 45).
To examine the association between participants’ reported level of valence during acts of IV and psychopathy, bivariate Pearson two-tailed correlations were calculated on participants’ valence scores during their acts of IV, total PCL-R scores and both factor scores. Participants’ reported levels of valence during acts of IV were significantly related with PCL-R factor one scores \((r = .20, p < .05)\) but not with factor two scores \((r = .06, p > .50)\) or with total scores \((r = .08, p > .40)\).

On the basis of the aforementioned analyses, partial support was found for hypothesis nineteen. Psychopathic participants reported significantly less symptoms of PTSD than nonpsychopathic participants in relation to acts of IV with no significant differences in regards to acts of RV, SD experiences, or LM experiences. Psychopathic participants reported significantly higher levels of positive valence than nonpsychopaths in relation to acts of IV. Participants’ reported levels of valence during such acts were related to their personality and affective qualities as opposed to their behavioral characteristics or psychopathy status.
Analyses for Hypothesis Twenty (Predisposing Factor: Psychopathy and Memory for Violence):

It was hypothesized that psychopathic participants would similarly recall their acts of IV and RV. To examine this hypothesis, participants were dichotomized based on their psychopathy status and paired samples t-tests were calculated on the MCQ memory criterion variables within each group for acts IV and RV. Psychopathic participants similarly recalled their acts of IV and RV (vividness: $t[38] = 1.32, p > .10$; detail: $t[38] = .26, p > .50$; overall memory: $t[38] = 1.94, p > .05$; see Table 46). Nonpsychopathic participants similarly recalled their acts of IV and RV (vividness: $t[66] = 1.81, p > .05$; detail: $t[66] = 1.50, p > .10$; overall memory: $t[66] = 1.84, p > .05$; see Table 47).

Table 46: Comparisons of Psychopathic Participants’ Memories for IV and RV

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Violence (IV)</td>
<td>5.79 (1.22)</td>
<td>5.79 (1.00)</td>
<td>6.08 (1.01)</td>
</tr>
<tr>
<td>Reactive Violence (RV)</td>
<td>5.51 (1.30)</td>
<td>5.85 (1.11)</td>
<td>5.72 (1.30)</td>
</tr>
</tbody>
</table>

Table 47: Comparisons of Nonpsychopathic Participants’ Memories for IV and RV

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Violence (IV)</td>
<td>5.43 (1.42)</td>
<td>5.51 (1.43)</td>
<td>5.82 (1.37)</td>
</tr>
<tr>
<td>Reactive Violence (RV)</td>
<td>5.07 (1.53)</td>
<td>5.22 (1.35)</td>
<td>5.45 (1.48)</td>
</tr>
</tbody>
</table>
On the basis of the above analyses, support was found for the hypothesis that psychopathic participants would similarly recall their acts of IV and RV. When the sample was dichotomized by psychopathy status, the nonpsychopathic participants were also found to similarly recall their acts of IV and RV. This finding is at odds with the results found for hypothesis four (i.e., better reported memory for IV than RV). The mean differences between the memory criterion variables were relatively larger in the nonpsychopathic group in comparison to the psychopathic group.

*Post-hoc Analyses for Hypothesis Twenty:*

To explore whether psychopathic participants reported better memory for acts of violence in comparison to nonpsychopathic participants, total memory scores for IV, RV, and LM were calculated (the MCQ memory criterion variables for each event were summed). Independent samples t-tests were calculated on the MCQ memory criterion variables and the total memory scores for the IV, RV, and LM events as a function of psychopathy. Psychopathic participants did not report significantly better memory for acts of IV in comparison to nonpsychopathic participants (vividness: \( t[110] = 1.09, p > .20 \); detail: \( t[110] = .73, p > .40 \); overall memory: \( t[110] = .72, p > .40 \); total memory: \( t[110] = .93, p > .30 \); see Table 48).

**Table 48: IV Memory Comparisons as a Function of Psychopathy**

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ 33)</th>
<th>Total Memory (Sum of MCQ 8, 9 &amp; 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychopaths</td>
<td>5.71 (1.42)</td>
<td>5.71 (1.25)</td>
<td>5.98 (1.27)</td>
<td>17.39 (3.64)</td>
</tr>
<tr>
<td></td>
<td>( p &gt; .20 )</td>
<td>( p &gt; .40 )</td>
<td>( p &gt; .40 )</td>
<td>( p &gt; .30 )</td>
</tr>
<tr>
<td>Nonpsychopaths</td>
<td>5.39 (1.49)</td>
<td>5.51 (1.41)</td>
<td>5.79 (1.36)</td>
<td>16.70 (3.91)</td>
</tr>
</tbody>
</table>
Psychopathic participants reported significantly higher levels of detail than nonpsychopathic participants concerning their memories for acts of RV ($t[124] = 1.99, p < .05$; see Table 49). Psychopathic participants did not report significantly better memory for acts of RV than nonpsychopathic participants concerning vividness ($t[124] = .61, p > .50$), overall memory ($t[123] = 1.08, p > .10$) or total memory ($t[123] = 1.33, p > .10$; see Table 49).

**Table 49: RV Memory Comparisons as a Function of Psychopathy**

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ 33)</th>
<th>Total Memory (Sum of MCQ 8, 9 &amp; 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychopaths</strong></td>
<td>5.20 (1.55)</td>
<td>5.61 (1.37)</td>
<td>5.64 (1.32)</td>
<td>16.44 (3.82)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &lt; .05$</td>
<td>$p &gt; .10$</td>
<td>$p &gt; .10$</td>
</tr>
<tr>
<td><strong>Nonpsychopaths</strong></td>
<td>5.03 (1.52)</td>
<td>5.11 (1.40)</td>
<td>5.36 (1.48)</td>
<td>15.49 (3.96)</td>
</tr>
</tbody>
</table>

Psychopathic participants did not report significantly better memory for LM experiences than nonpsychopathic participants (vividness: $t[73] = 1.05, p > .20$; detail: $t[72] = .92, p > .30$; overall memory: $t[73] = 1.82, p > .05$; total memory: $t[72] = 1.44, p > .10$; see Table 50).

**Table 50: LM Comparisons as a Function of Psychopathy**

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ 33)</th>
<th>Total Memory (Sum of MCQ 8, 9 &amp; 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychopaths</strong></td>
<td>3.37 (1.60)</td>
<td>3.23 (1.53)</td>
<td>3.81 (1.69)</td>
<td>10.05 (4.20)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .20$</td>
<td>$p &gt; .30$</td>
<td>$p &gt; .05$</td>
<td>$p &gt; .10$</td>
</tr>
<tr>
<td><strong>Nonpsychopaths</strong></td>
<td>2.94 (1.77)</td>
<td>2.86 (1.68)</td>
<td>3.02 (1.87)</td>
<td>8.82 (5.08)</td>
</tr>
</tbody>
</table>

A total memory for IV and RV score was calculated by summing together participants’ total memory for IV score with participants’ total memory for RV score. Psychopathic participants’ total memory for IV and RV ($X = 34.74; SD = 5.40$) was not
significantly higher than nonpsychopathic participants’ total memory for IV and RV ($X = 32.51; SD = 6.61; t[104] = 1.79, p > .05$). A total memory for violence score was calculated by summing together participants’ total memory for IV score with participants’ total memory for RV score with the participants’ total memory for LM score. Psychopathic participant’s total memory for violence score ($X = 45.00; SD = 7.88$) was not significantly higher than nonpsychopathic participants’ total memory for violence score ($X = 40.01; SD = 9.54; t[54] = 1.85, p > .05$).

The above post-hoc analyses indicated psychopathic participants reported significantly higher levels of detail for acts of RV as compared to nonpsychopathic participants. Although the remaining memory comparisons between groups were null, all mean differences were in the direction indicating psychopathic participants reported relatively better memory than nonpsychopathic participants for acts of perpetrated violence.

*Analyses for Hypothesis Twenty-One (Predisposing Factor: Psychopathy and Memory for POS and SD):*

It was hypothesized that psychopathic participants would similarly recall their POS and SD experiences. To evaluate this hypothesis, total memory scores for POS and SD experiences were calculated (i.e., participants’ responses to the MCQ memory criterion variables were summed for each event). Participants were dichotomized based on their psychopathy status and paired samples t-tests were calculated on the MCQ memory criterion variables and the total memory scores within each group for the POS and SD experiences.
Psychopathic participants’ reports of vividness for their POS experiences did not significantly differ from reports of vividness for their SD experiences ($t[50] = 1.76, p > .05$; see Table 51). Psychopathic participants reported significantly higher levels of detail ($t[50] = 2.23, p < .05$), overall memory ($t[50] = 2.17, p < .05$), and total memory ($t[50] = 2.44, p < .05$) for their POS experiences in comparison to their SD experiences (see Table 51).

Table 51: Psychopathic Participants’ Memories for POS vs. SD Experiences

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ33)</th>
<th>Total Memory (Sum of MCQ 8, 9 &amp; 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>5.80 (1.31)</td>
<td>6.00 (1.22)</td>
<td>6.22 (1.17)</td>
<td>18.02 (3.32)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .05$</td>
<td>$p &lt; .05$</td>
<td>$p &lt; .05$</td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td>Subjectively</td>
<td>5.39 (1.32)</td>
<td>5.51 (1.33)</td>
<td>5.76 (1.24)</td>
<td>16.67 (3.44)</td>
</tr>
<tr>
<td>Disturbing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As reported earlier (see post-hoc analyses for hypothesis three), when the entire sample was examined, the SD experiences were significantly older in age than the POS experiences. When participants were dichotomized by psychopathy status, psychopathic participants’ SD experiences ($X = 18.93; SD = 12.82$) were significantly older in age than their POS experiences ($X = 12.95; SD = 11.54; t[49] = 4.00, p < .001$). To investigate possible memory differences between these events after controlling for the ages of these events, ANCOVAs were conducted on the MCQ memory criterion variables and the total memory scores for the psychopathic participants’ POS and SD experiences. Psychopathic participants’ reports of vividness ($F[1, 48] = .70, p > .40$), detail ($F[1, 48] = 1.04, p > .30$), overall memory ($F[1, 48] = .83, p > .30$) and total memory ($F[1, 48] = 1.24, p > .20$) for their SD experiences did not significantly differ in comparison to their POS experiences.
On the basis of the above analyses, full empirical support was found for hypothesis twenty. That is, when the ages of the events were controlled, psychopathic participants similarly recalled their POS and SD experiences. The aforementioned analyses were repeated for the nonpsychopathic participants (see below).

Nonpsychopathic participants’ memories for their POS experiences did not significantly differ from their SD memories (vividness: $t[77] = 1.46, p > .10$; detail: $t[77] = .89, p > .30$; overall memory: $t[77] = 1.07, p > .20$; total memory: $t[77] = 1.35, p > .10$; see Table 52). As noted earlier (see post-hoc analyses for hypothesis three), when the entire sample was examined, the SD experiences were significantly older in age than the POS experiences. When the sample was dichotomized into psychopathic and nonpsychopathic participants, nonpsychopathic participants’ SD experiences were significantly older in age ($\bar{X} = 15.94; SD = 13.03$) than their POS experiences ($\bar{X} = 10.40; SD = 10.04; t[74] = 3.92, p < .001$). To investigate possible memory differences between these two events after controlling for the ages of these events, ANCOVAs were conducted on the MCQ memory criterion variables and the total memory scores for the nonpsychopathic participants’ POS and SD experiences. Nonpsychopathic participants similarly recalled their POS and SD experiences (vividness: $F[1, 73] = .64, p > .40$; detail: $F[1, 73] = .06, p > .80$; overall memory: $F[1, 73] = .39, p > .50$; total memory: $F[1, 73] = .40, p > .50$).
Table 52: Nonpsychopathic Participants’ Memories for POS vs. SD Experiences

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ 33)</th>
<th>Total Memory (Sum of MCQ 8, 9 &amp; 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive</strong></td>
<td>5.68 (1.15)</td>
<td>5.60 (1.14)</td>
<td>5.89 (1.14)</td>
<td>17.17 (2.84)</td>
</tr>
<tr>
<td><strong>Subjectively Disturbing</strong></td>
<td>5.45 (1.23)</td>
<td>5.44 (1.42)</td>
<td>5.71 (1.37)</td>
<td>16.59 (3.62)</td>
</tr>
</tbody>
</table>

The aforementioned results are consistent with the results for hypothesis three.

Together, these results indicate participants similarly recalled their POS and SD experiences.

**Post-hoc Analyses for Hypothesis Twenty-one:**

To explore whether psychopathic participants reported better memory for their POS and SD experiences in comparison to nonpsychopathic participants, participants were dichotomized by psychopathy status. Independent samples t-tests were calculated on the MCQ memory criterion variables and the total memory scores for the POS and SD experiences as a function of psychopathy. Psychopathic participants’ memories for their POS experiences did not differ significantly from nonpsychopathic participants memories for their POS experiences (vividness: $t(130) = .44, p > .50$; detail: $t(130) = 1.75, p > .05$; overall memory: $t(130) = 1.58, p > .10$; total memory: $t(130) = 1.45, p > .10$; see Table 53).

Table 53: POS Memory Comparisons as a Function of Psychopathy

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ 33)</th>
<th>Total Memory (Sum of MCQ 8, 9 &amp; 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychopaths</strong></td>
<td>5.79 (1.32)</td>
<td>5.98 (1.23)</td>
<td>6.23 (1.15)</td>
<td>18.00 (3.33)</td>
</tr>
<tr>
<td><strong>Nonpsychopaths</strong></td>
<td>5.70 (1.15)</td>
<td>5.61 (1.15)</td>
<td>5.91 (1.14)</td>
<td>17.22 (2.86)</td>
</tr>
</tbody>
</table>
Psychopathic participants’ SD memories did not significantly differ from nonpsychopathic participants’ SD memories (vividness: $t[129] = .09, p > .50$; detail: $t[129] = .39, p > .50$; overall memory: $t[129] = .28, p > .50$; total memory: $t[129] = .23, p > .50$; see Table 54).

Table 54: SD Memory Comparisons as a Function of Psychopathy

<table>
<thead>
<tr>
<th></th>
<th>Vividness (MCQ 8)</th>
<th>Detail (MCQ 9)</th>
<th>Overall Memory (MCQ 33)</th>
<th>Total Memory (Sum of MCQ 8, 9 &amp; 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychopaths</td>
<td>5.42 (1.33)</td>
<td>5.54 (1.34)</td>
<td>5.79 (1.24)</td>
<td>16.75 (3.46)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Nonpsychopaths</td>
<td>5.44 (1.23)</td>
<td>5.44 (1.41)</td>
<td>5.72 (1.37)</td>
<td>16.61 (3.60)</td>
</tr>
</tbody>
</table>

All of the aforementioned post-hoc analyses were null. Save for one result, the pattern indicated psychopathic participants reported relatively better memory for POS and SD experiences in comparison to nonpsychopathic participants. In conjunction with the post-hoc analyses for hypothesis twenty, these results indicate psychopathic participants reported relatively better memory for their autobiographical experiences in comparison to nonpsychopathic participants.

**Summary of Analyses of Predisposing Factors:**

Partial support was found for five hypotheses on predisposing factors. Trait dissociation was partially negatively associated with recall for the SD experiences and the acts of IV and RV. Although introversion was not associated with participants’ capacity to provide LM experiences, there was an association with three other Big Five personality factors. Although there was not a significant association between psychopathy and participants’ capacity to provide LM experiences, psychopathic participants provided LM experiences relatively less frequently than nonpsychopathic participants. No associations
between psychopathy and dissociation or with psychopathy and arousal were found. Psychopathic participants reported significantly fewer PTSD symptoms and significantly higher levels of positive valence in relation to acts of IV as compared to nonpsychopathic participants. Participants’ level of valence was significantly associated with the personality and affective characteristics of psychopathy as opposed to the behavioral characteristics of the disorder and the disorder itself. Psychopathic participants recalled their acts of IV a similar fashion as their acts RV. Similar results were found when their POS and SD experiences were compared. When psychopathic participants’ memories were compared to nonpsychopathic participants’ memories, the former group reported significantly higher levels of detail in relation to their acts of RV. All other between subject comparisons across memories were null. Save for one result, the pattern of results indicated psychopathic participants reported better relatively memory for all of their autobiographical experiences as compared to nonpsychopathic participants.
Discussion

The present investigation was the largest study on eyewitness memory in violent offenders to date. Influenced by theoretical and empirical considerations discussed earlier, the study involved the elicitation of divergent types of memories and the assessment of state and trait variables in relation to the participants and their memories. In support of certain assumptions underlying Hervé et al.'s (under review) biopsychosocial theory of eyewitness memory, a number of predisposing, precipitating, and perpetuating factors were demonstrated to be independently associated with the participants’ memories. Further, and consistent with Hervé et al.’s theory, the interaction of certain factors was related to the participants’ memories. Thus, initial empirical support was found for some of the elements of Hervé et al.’s biopsychosocial theory of eyewitness memory. In the following sections, the results are discussed in terms of how the present research supports Hervé et al.’s biopsychosocial theory and the related literature. First, the manipulation checks and the results demonstrating internally consistent findings are reviewed. Second, findings related to the precipitating, perpetuating, and predisposing memory influencing factors of the biopsychosocial theory are discussed. Third, the limitations of the present investigation are reviewed and suggestions for future research are offered. Finally, implications of the research for the criminal justice system are proposed. As Hervé et al.'s theory is discussed repeatedly, for the sake of readability, it is referred to as the THEORY for the remainder of this dissertation.
Manipulation Checks-Internal Consistency

One manipulation check demonstrated the LM (i.e., lack of memory for violence) experiences were reportedly recalled the poorest of all five autobiographical experiences, reflected in reported levels of vividness, detail, and overall memory. These findings indicate the participants understood what was asked of them in terms of providing poorly recalled memories of violence. The finding that 55% of the participants provided LM experiences suggests over half of the sample reported dissociative amnesia (APA, 2000) for acts of perpetrated violence. This finding supports the importance of dissociative amnesia as a pattern of memory (Hervé et al., under review; Yuille & Daylen, 1998). The present rate of claimed amnesia for violence is in line with findings from other offender research that has examined this issue (i.e., 25-65%; Bradford & Smith, 1979; Cima, Merckelbach, Nijman, Knauer, & Hollnack, 2002; Kopelman, 1987; Porter et al., 2002). Consistent with research with victims (Mechanic et al., 1998) and offenders (Cooper et al., under review) and with the assumptions of the THEORY, the memory impairments associated with the LM experiences were influenced by precipitating factors such as state dissociation and intoxication and predisposing personality attributes. Further, in support of the theoretical literature on red outs (Dutton, 1995; Swihart et al., 1999) and related research (Guttmacher, 1960; O’Conner, 1960; Parwatikar et al., 1985), in some circumstances, precipitating negative affect (i.e., rage) was reported as a causal amnesic factor as well (see below). Unfortunately, the design of the present study precluded an investigation of how affect, dissociation, and intoxication could be teased apart.

The other manipulation check indicated that the positive memories were associated with reports of significantly higher levels of positive valence than the other
four types of experiences. Conversely, the subjectively disturbing experiences were reportedly experienced with significantly higher levels of negative valence than the other four types of events. These findings serve as evidence the participants understood what was asked of them in terms of providing positively valenced experiences for the positive events and negatively valenced experiences for the subjectively disturbing events. Thus, the manipulation checks demonstrated the participants followed the procedure in a valid fashion.

In addition to the manipulation checks, other findings indicate the data are internally consistent. For example, in line with the findings from research with victims of violent crime (Cooper, 1999; Cooper et al., 1999), significantly higher levels of state dissociation were associated with the participants' subjectively disturbing experiences than their positive experiences. Further, the rates of potential PTSD diagnoses for the subjectively disturbing experiences are consistent with previous research with offenders (e.g., Burton, Foy, Bwanausi, Johnson & Moore, 1994; Gibson et al., 1999). Moreover, the finding that the subjectively disturbing events were associated with higher levels of PTSD symptoms than the acts of violence is consistent with previous research on the topic (e.g., Cauffman et al., 1998; Spitzer et al., 2001; Steiner et al., 1997). As another example, in line with past research (e.g., Benet-Martínez & John, 1998; for review, see Digman, 1990), the present results indicated the big five factors (John & Srivastava, 1999) associated with positive personality qualities (i.e., extraversion, agreeableness, openness, conscientiousness) were all significantly positively associated with each other (i.e., save for the non significant association between agreeableness and extraversion) and significantly negatively correlated with the neuroticism factor. Further, the present
samples’ computed big five factor means are comparable to results from previous research (e.g., Aziz & Jackson, 2001). Also, the strong intercorrelations between the intrusion and avoidance subscales of the IES (Horowitz et al., 1979) within each event are consistent with the results of prior research (e.g., Wohlfarth, van den Brink, Winkel & ter Smitten, 2003). Thus, evidence indicated the data were internally consistent.

In the following sections, the findings related to the precipitating, perpetuating, and predisposing memory factors are discussed.

Biopsychosocial Memory Influencing Factors

Consistent with past research with victims (e.g., Cooper et al., 2002; for review, see Christianson, 1992), the findings from the present investigation indicate eyewitness memory is extremely variable. The results demonstrated much of this variability could be explained by individual differences in precipitating, perpetuating, and predisposing factors.

Precipitating Factors

According to the THEORY, a variety of precipitating factors should impact an individual’s eyewitness memory for a criminal/traumatic event. It was not possible to examine all of the precipitating factors outlined in the THEORY. Rather, this dissertation focused on the following precipitating factors: (a) the type of event; (b) affect (i.e., arousal and valence); and (c) state dissociation (including the perspective [field versus observer] reported). Consistent with the assumptions of the THEORY, the type of violence employed (instrumental versus reactive) influenced the participants’ reports of their perpetrated acts of violence. Further, and in line with predictions based on the THEORY, the valence experienced during the violent acts impacted the participants’
memories for such acts. However, arousal did not influence memory and the participants similarly recalled their positive and subjectively disturbing experiences. Finally, although state dissociation was negatively associated with memory for all events, the perspective reported at the time of each event (i.e., field versus observer) did not impact memory. These results are discussed in detail below.

Based on the THEORY, Yuille, Cooper, Hervé & Hanson (2004) suggest, because the motivation to commit instrumental violence is, by definition, external (e.g., financial), a perpetrator of instrumental violence should focus on the event proper during the commission of such violence. Moreover, the preceding fantasy associated with such violence should have a positive effect on memory (Porter et al., 2002; Swihart et al., 1999). Thus, the instrumental nature of the violence should lead to good memory for the event. In contrast, due to the internal motivation of reactive violence (e.g., rage), a perpetrator of such violence should focus more on internal (e.g., their subjective state) than external sources. Accordingly, the perpetrator of reactive violence should have relatively poorer memory for the event proper. Given that the present participants reported significantly higher levels of vividness and better overall memory for their instrumental acts of violence than their reactive acts of violence, these proposals were indirectly supported. Similarly, and consistent with the results of Taylor and Kopelman’s (1984) research, the participants’ LM experiences were significantly more likely to have been reactively motivated than instrumentally motivated.

In addition to the precipitating nature of the violent events, other precipitating factors from the THEORY impacted the participants’ memories for their violent acts. In fact, one possible explanation for the greater amnesia associated with reactively violent
memories than instrumentally violent memories is valence. As reviewed earlier, extreme negative valence can have a debilitating effect on offenders' memory for violence (Bradford & Smith, 1979; Harry & Resnick, 1986; Hopwood & Snell, 1933; O’Connell, 1960). In the present investigation, the reactive acts of violence were experienced with significantly higher levels of negative valence than the instrumental acts of violence. As an example of negative valence and reactive violence, one participant was so angry during and subsequent to committing a reactive murder of his associate, he kicked the victim’s dead body in a state of rage, yelling at him, asking why he provoked him. As the THEORY predicts, negative valence could lead to poor memory for violence, particularly in hypersensitive individuals who commit reactive violence. According to the THEORY, building upon the work of Mandler (1984) and Easterbrook (1959), the arousing nature of reactive violence could interact with a perpetrator’s hypersensitivity to arousal, leading to a narrowed and disrupted focus of attention during an event. Issues related to arousal sensitivity aside, anecdotally, some support was found for the suggestion that negative valence could debilitate perception and thus memory. For example, one participant retrospectively described his affective state during the commission of a reactive murder as follows: “when I started to lose my temper...it’s kinda like my vision bubbled or something, it bubbled inside my eye...that’s what it felt like, it felt like it bubbled from my vision...my vision was slightly distorted...that’s how it gets when I’m really angry.” Similarly, another participant discussed part of his reactively motivated lack of memory for violence experience as follows: “I mean when it’s [violence] spur of the moment, right then and there, you know, who knows what happens...sometime you do lose the memory...I’m not going to say I lost memory but sometimes anger gets in the way.”
After some questioning, he went on to comment the following: “because I was angry, and it’s like when you are angry, you block things out, you don’t care...anybody who threatens me or anyone close to me, that’s it, I see red, I go after them and that’s the way it is.”

These two aforementioned anecdotes arguably represent examples of the red out pattern of memory discussed earlier as part of Yuille and Daylen’s (1998) descriptive model of eyewitness recall. Indeed, both involved reactive rage states that led to poor memory and both reactive violence and extreme negative valence are variables characteristic of red out experiences (Swihart et al., 1999). Interestingly, the latter participant actually described seeing the colour red, as did one of the batterers examined by Dutton (1995). Another participant from the present investigation provided a similar statement. As he was describing his poor memory for a reactive murder, he noted the following: “…that’s when I started stabbing him, I can’t remember if he lived or not. All I know is that, while I was going towards him, all I could see was red.” The interviewer then curiously stated the following, “when you went to stab him, you mentioned that you saw red. Do you remember anything more about that?” The participant replied, “…when you’re angry, you know, you don’t see anything. Anything that makes sense anyways.” Unfortunately, for a number of reasons (e.g., the high rate of reported substance use during the acts of violence, low power), these apparent red out experiences contribute little beyond their anecdotal nature.

Although negative valence appears to have negatively impacted some of the participants’ memories of reactive violence, positive valence during acts of instrumental violence was associated with reports of better memory for such experiences. Similar
findings were found for the positive experiences. These findings support certain assumptions of the THEORY. According to Hervé et al. (2003), an individual’s affective response to an event should be positively associated with their memory for the event if the nature of the event is egosyntonic (e.g., experienced with positive valence; consistent with their world view), as opposed to egodystonic (e.g., experienced with negative valence; inconsistent with their world view), to the individual. In terms of the present participants’ emotional responses to their provided events, the positive experiences were rated as significantly more positive in valence than the other four types of events and positive valence during such experiences was positively, although marginally, associated with recall for such experiences. Thus, the positive experiences were clearly egosyntonic to the participants and were partially related to their accounts of memory for those experiences. Similarly, the instrumental acts of violence were rated as significantly more positive in valence than the reactive acts of violence and the subjectively disturbing experiences. Thus, the instrumental acts of violence were viewed as relatively egosyntonic to the participants and such an emotive response was positively related to their accounts of memory for such experiences. As an example of positive valence and good memory for instrumental violence, one participant with a particularly detailed account of his act of instrumental violence stated the following: “I just kept stabbing, stabbing, stabbing. And I was laughing half the time I was doing this. I remember laughing at him…we started to beat the guy in the head with a hammer. And I’m sitting there holding this guy in place and we are both laughing our heads off…and we hear this funny noise like squishing, and we are all laughing hysterically at that.” In fact, the only negative affect displayed by this participant concerned the reality that the victim
remained alive after his gruesome beating. In this vein, the participant stated the following, "...and I'm trying to convince them [his associates] to go back so I can finish the job...so I was kind of pissed off because I didn't get [kill] him."

Although precipitating factors such as the type of event and valence played a role in the dynamics underlying the participants’ memories for violence, as stated earlier, such factors could not explain the null memory differences between the positive and subjectively disturbing experiences. Indeed, although experienced with divergently different levels of valence, when the ages of the events were controlled, the positive and subjectively disturbing experiences were similarly recalled. Thus, consistent with prior field research with victims of violent crime (e.g., Cooper et al., 1999; Tromp et al., 1995) and other types of potentially traumatic experiences (e.g., Thompson et al., 1997), and with research that has used various MCQ (Johnson et al., 1988) items as memory criterion variables (e.g., Byrne, Hyman & Scott, 2001), negative valence during traumatic experiences is not directly related to memory impairments for such experiences. Taken together, these findings and the present results indicate that there is not a robust negative effect of trauma on memory as some of the analogue results suggests (e.g., Loftus & Burns, 1982; for review, see Christianson, 1992). Rather, as the results of the present investigation and an increasing body of field research indicate, a number of factors can affect recall, irrespective of the nature of the precipitating event (e.g., positive versus subjectively disturbing) and the valence experienced within (e.g., positive versus negative).

Although valence was partially associated with the participants’ memories, reports of arousal had no effect on memory. There are several possible explanations for
this lack of effect. First, the variability in reports of arousal levels was small, particularly for accounts of arousal during the main parts of the events. Second, as suggested earlier, the arousal dimension of the Affect Grid was not likely sensitive to differences in baseline arousal. For example, it is possible that two participants reported the same level of arousal but due to different resting (i.e., baseline) levels of arousal, and difficulty reporting on physiological states (i.e., particularly for psychopathic individuals; see Pham, Phillips & Rime, 2000), each actually experienced different levels of arousal. Alternatively, the participants may have responded accurately to the arousal dimension of the Affect Grid and the lack of effect reflects the possibility that, although instrumental and reactively violent events are experienced divergently in terms of valence, such events are experienced with similar levels of arousal. Indeed, the positive and subjectively disturbing events, although experienced with different levels of valence, were reportedly experienced with similar levels of arousal. Such findings are consistent with prior research on the subject. For example, divergent affective states such as excitement and fear (Bockheler, 1995) and anger and happiness have been shown to be experienced with similar high levels of arousal (Russell & Mehrabian, 1977). Such research therefore clearly indicates arousal and valence are orthogonal dimensions. After finding a nonsignificant intercorrelation between the two constructs, Russell and Mehrabian concluded the following: “it is incorrect to equate pleasure with intermediate arousal and to equate displeasure with extremes of arousal. Rather, pleasure and arousal must be defined as independently varying dimensions” (p. 279). The present results are consistent with this conclusion, as arousal levels, but not valence levels, were similarly reported by the participants concerning their positive and subjectively disturbing experiences and
their acts of reactive and instrumental violence. Thus, although valence had an effect on memory for violence, arousal was not associated with memory for violence.

The above noted explanations notwithstanding, the present results regarding reports of arousal speak to the difficulty of retrospectively assessing physiological arousal in field memory research, particularly after a considerable delay. However, even with laboratory research on arousal and memory, there is little consensus among researchers in terms of how to accurately define and measure arousal (Pham et al., 2000), particularly high levels of arousal (Brown, 2003). This may be due to the ethical restrictions associated with conducting laboratory-based research in conjunction with issues related to individual differences in baseline arousal (Hervé et al., under review). Irrespective of these issues, the existing research on arousal and memory is itself empirically paradoxical and theoretically complex. In fact, some research shows arousal negatively affects memory (Christianson, 1984; Christianson & Nilsson, 1984; Kramer et al., 1990); some research shows arousal enhances memory (Cutshall & Yuille, 1989; Yuille & Cutshall, 1986); and some research shows arousal has no effect on memory (Pezdek, 2003; for review, see Christianson, 1992). Such differences are likely an artifact of methodological issues (e.g., analogue versus field studies; self-report versus physiological measures of arousal; delay; examination of central versus peripheral details, etc.) and individual differences in baseline arousal (e.g., arousal sensitivity; Hervé et al., under review).

Although arousal did not affect the participant’s violent memories, as the THEORY predicts, arousal may have affected the participants’ attention during their experiences, via a narrowing of focus (Christianson & Hubinette, 1993; Easterbrook, 1959), and thus may have affected how their memories were initially encoded (Porter et
al., 2001). This may have been particularly the case for hypersensitive participants as, in theory, high levels of arousal negatively affect such individuals' cognitive processes. Unfortunately, as no measure of arousal sensitivity was employed and the participants' narratives have not all been transcribed and coded for detail and discrepant foci, an examination of such issues (e.g., memory for central versus peripheral details) was not possible. Thus, such speculations should be viewed cautiously until research is conducted on this topic with offenders.

In support of the THEORY, in addition to affect (i.e., valence but not arousal), other precipitating affective responses to violence were associated with the participants' memories. Although the instrumental and reactive acts of violence were reportedly experienced with similar levels of state dissociation, such an affective response was associated with claimed memory impairments for both the instrumental and reactive acts of violence and the LM experiences. Similar results were found for the positive and subjectively disturbing experiences. In addition to supporting the THEORY, such findings are in line with the traditional and contemporary theoretical literature on dissociation and memory. Traditionally speaking, Janet (1920) discussed how symptoms of dissociation are related to memory problems for the precipitating event. In this view, through the process of dissociation, an individuals' memory for an event and the emotions associated with the memory become functionally separated. Consequently, although the individual experiences an emotive response in relation to the precipitating event, he/she is amnesic for the actual event. Similarly, in the contemporary literature, van der Kolk (1996) has suggested dissociation at the time of an event negatively influences individuals’ narrative construction of the event. According to this view, prior
to narrative construction, the individual’s memory for the precipitating event exists in only a somesthetic, nonverbal form (van der Kolk & Fisler, 1995). Some have suggested such memories are initially processed through neuronal pathways involving subcortical structures such as the amygdala, leading to the development of implicit, rather than explicit memories (Le Doux, 1992). It has also been suggested that state dissociative symptoms lead to poor memory because, at the time of the event, the individual only processes the event at a superficial level with a lack of self-reference (Halligan et al., 2003). It is only through successful integration of the memory and emotion that the narrative is reconstructed and is thus available for recall (e.g., via exposure therapy; Foa, Molnar, & Cashman, 1995).

Consistent with findings from both the victim and offender literature concerning state dissociation and memory for violence and sexual violence (e.g., Griffin et al., 1997; Gudjonsson & MacKeith, 1983; Halligan, Michael, Clark & Ehlers, 2003; Harry & Resnick, 1986; Mechanic et al., 1998; Tanay, 1969; for review, see Porter et al., 2001), anecdotal evidence from the present study supports the negative relationship between state dissociation and memory. For example, one participant recalled the following in relation to committing a reactively motivated murder: “...at the point when he [the victim] was talking shit...my head started clouding up...I tweaked...I don’t know what happened. I have no idea what happened. I just know that he was dead at the end of it.” Similarly, another participant described the following in relation to witnessing the stabbing of his associate in prison, “I remember feeling very scared and very confused and lost...I felt I was not there. It’s like I detached myself from myself.” Of course, considering the high rate of reported intoxication during the events, particularly during
the violent events, the reported amnesia may have been due to organic (Goodwin, 1995; Goodwin, Crane, & Guze, 1969; Goodwin, Powell, Bremer, Hoine, & Stern, 1969) as opposed to functional (i.e., state dissociation) influences. Although the present rates of claimed intoxication during the commission of violence are consistent with previous findings (e.g., Bradford & Smith, 1979; Cooper et al., under review; Leong & Aururo, 1995; Macdonald & Wells, 2001), the nature of the present investigation precluded a demonstration of how organic and psychogenic amnesia may be teased apart. Organic and functional amnesia may be distinguished by the nature of the amnesia itself. For example, if one reaches a certain point of alcohol intoxication prior to committing an act of violence, a complete blackout may occur, and, thus, anterograde amnesia will ensue (Goodwin, Othmer, Halikas, & Freemon 1970; Wolf, 1980). However, if the amnesia is functional in nature, via extreme rage, such in a red out, the person may remember what happened prior to and subsequent to the act of violence and the amnesia would be restricted to the act of violence (Swihart et al., 1999). Although theoretically appealing, it was impossible to disentangle this issue in the present investigation. Thus, some of the claimed memory impairments likely represent a mixture of organic and non-organic precipitants.

In support of the THEORY, consistent with past research (Cooper et al., under review), the participants’ precipitating dissociative response to their events was not only associated with their claimed memory impairments and but with their tendency to report observer perspectives. However, such perspectives had no impact on the MCQ ratings. Although the fact that many participants reported observer perspectives lends support to the existence of a dissociative external perspective as described by Yuille and Daylen
(1988), the THEORY predicts different memory consequences as a function of divergent attentional foci. Presumably, the nature of the memory criterion variables used in the present investigation precluded a comprehensive examination of the possible memory differences between the divergent perspectives. For example, it is possible that observer perspectives are associated with more subjective (e.g., emotional) than objective (e.g., event related) details for the event proper. Further, there are a number of factors that likely affect the perspective taken at encoding and at recall (i.e., perspective in memory). These variables include the emotional response of the individual at the time of encoding and the focus of this response upon retrieval (D’Argembeau et al., 2003). Unfortunately, it was impossible to examine these issues in the present investigation.

Perpetuating Factors

As discussed earlier, in addition to precipitating factors, the THEORY predicts a number of perpetuating factors impact individuals’ eyewitness memories for events. It was not feasible to examine all of the perpetuating factors discussed in the THEORY. Rather, the following perpetuating factors were investigated in this dissertation: (a) PTSD intrusion symptoms; (b) frequency of past recall; and (c) PTSD avoidance symptoms. As discussed below, depending on the analyses and the type of event examined, all of these variables were associated with the participants’ memories.

Consistent with past research on PTSD and memory (Klein et al., 2003), and in support of the THEORY, in the present investigation, depending on the analysis, intrusion symptoms of PTSD had a facilitative effect on memory for both the reactive and instrumental acts of violence and the subjectively disturbing experiences. Similar results were found for reports of rehearsal. Taken together, these results make clear conceptual
sense. PTSD intrusion symptoms are analogous to retelling an event (e.g., in one’s mind) and repeated rehearsal can have a facilitative effect on memory (Cohen & Faulkner, 1988; Lee & Brown, 2003; Rabbitt & Winthorpe, 1988; Scrivner & Safer, 1988; Yuille & Daylen). Thus, the more an individual rehearses an event (i.e., either to themselves or to others), the better is their memory for the event. As noted by Anderson, Cohen and Taylor (2000), “frequent rehearsal acts to ‘fix’ memory content and structure as well as to preserve vividness” (p. 437). Of course, what is preserved depends on what part of the event is rehearsed (Hervé et al., under review). In this regard, Pezdek (2003) noted the following: “if relatively more of the emotions produced by a stressful event are attached to a witness’s autobiographical experience, then memory for this aspect of an event is more likely to be rehearsed and will be better retained in memory. On the other hand, if relatively more of the emotions produced by an event are attached to a witness’s experience of the event itself, then details of the event itself are more likely to be rehearsed and will be better retained” (p. 1044). Although rehearsal may improve recall (e.g., in terms of vividness of the reports), rehearsal may also lead to errors and/or distortions (Niedźwieńska, 2003) and rehearsal may influence imagined events to appear as if they were actually perceived (Suengas & Johnson, 1988). Unfortunately, the nature of the present investigation precluded an examination of how rehearsal may have affected the veracity of the participants’ memories.

Interestingly, perpetuating PTSD avoidance symptoms were partially associated with recall for the reactively violent and subjectively disturbing experiences. It is noteworthy that avoidance symptoms were positively associated with memory for events experienced with relative negative valence (i.e., the reactive acts of violence and the
subjectively disturbing experiences) and not with memory for events experienced with relative positive valence (i.e., the instrumental acts of violence). Although the associations between avoidance symptoms and memory for reactive violence and subjectively disturbing experiences were unexpected and are somewhat inconsistent with the assumptions of the THEORY, these findings are in line with prior research and theory on thought suppression. Wegner (1989, 1994), for example, has proposed that thought suppression or cognitive avoidance (as in PTSD; APA, 2000) might actually lead to the opposite of the desired result. That is, if an individual attempts to avoid thinking about an unwanted thought, the opposite may transpire and the individual may experience an increased frequency of the unwanted cognition. Wegner theorizes this rebound effect occurs because of the interaction of operating and monitoring processes. Although the goal of the operating process is to remove the unwanted thought from consciousness by locating possible distracting thoughts, the monitoring process concerns the examination of the effectiveness of the operating process and, thus, ironically involves searching for the suppressed thoughts. Thus, the rebound effect is a consequence of the distracting thoughts becoming associated with the unwanted thoughts. As a result, the distracting thoughts become cues for the unwanted thoughts and the act of thought suppression therefore eventually leads to an increased frequency of the unwanted thoughts. Empirical support for Wegner’s (1989, 1994) rebound effect theory has been found in a number of investigations (e.g., Davies & Clark, 1998; Wegner, Schneider, Carter & White, 1987). The memory patterns for reactive violence and subjectively disturbing experiences are implicitly consistent with Wegner’s theory as well. The fact that increased reports of PTSD avoidance symptoms were strongly associated with increased reports of PTSD
intrusion symptoms provides further evidence that increased cognitive avoidance can lead to a rebound effect, and thus, better memory for an event. The process of using PTSD avoidance symptoms in an attempt to avoid reminders of past negatively valenced experiences is similar to the process of active forgetting (Yuille & Daylen, 1998). It does not appear that this is a particularly beneficial process if attempting to forget an experience is the objective.

**Predisposing Factors**

In addition to precipitating and perpetuating factors, the THEORY proposes that a variety of predisposing factors influence individuals' eyewitness memories for events. As with the precipitating and perpetuating factors, it was not possible to investigate all of the predisposing factors outlined in the THEORY. Rather, the following predisposing factors were examined in this dissertation: (a) trait dissociation; (b) personality; and (c) psychopathy. As discussed below, depending on the analyses and the type of event examined, all of these variables were weakly associated with the participants' memories.

Depending on the analyses, trait dissociation was negatively associated with memory for the instrumental and reactive acts of violence and the subjectively disturbing experiences. However, this effect was most consistently demonstrated in regards to the subjectively disturbing experiences. This result should not be surprising considering the vast majority of the research regarding trait dissociation and memory has concerned witness' or victims' responses to traumatic experiences (e.g., Hunter & Andrews, 2000). Indeed, the present investigation involved the first examination of trait dissociation and memory for positive experiences and acts of violence in any sample. Some of the null results, in terms of trait dissociation and memory for the positive experiences and the acts
of violence could be partially explained by the fact that the construct of dissociation is primarily associated with traumatic experiences and, as such, does not robustly effect memory for experiences that are not perceived as strongly negative in valence.

In addition to the THEORY, various theories of dissociation support the negative relationship between trait dissociation and memory for subjectively disturbing experiences. For example, continued dissociation (e.g., experienced by an individual with a high level of trait dissociation) outside the context of an actual trauma could interfere with an individual’s ability to process current information such as a later experience of trauma (van der Kolk, et al., 1996). In this view, prior traumas could lead to a dissociative disposition (Chu & Dill, 1990) and such a disposition could negatively impact an individuals’ capacity to encode information during a subsequent trauma, perhaps via a state dissociative response (Marmar et al., 1994). It appears both victims of trauma (Hunter & Andrews, 2000) and perpetrators of violent crime are similarly susceptible to the negative memory effect of trait dissociation in relation to traumatic (subjectively disturbing) experiences.

Although some research has examined the association between trait dissociation and personality (Hall, Cooper, & Yuille, 2003), this issue was beyond the scope of the present investigation. However, personality was examined in relation to the participants’ LM experiences. The big five (John & Srivastava, 1999) factors of agreeableness, conscientiousness, and neuroticism were associated with the participants’ capacity to provide LM experiences. In addition to supporting the THEORY, the latter finding is consistent with the results of O’Connell’s (1960) investigation, as homicide offenders’ claims of amnesia were related to diagnoses of hysterical personality disorder.
Neuroticism and dissociation were underlying components of hysterical personality disorder in the DSM-II (Sigmund, Barnett, & Mundt, 1998). Further, this finding supports the work of Sherman (1957). According to Sherman, the anxious drive characteristic of neurotics interferes with their higher cognitive functioning and, thus, impairs their memory. As introversion was significantly negatively related to neuroticism, and neuroticism was positively associated with the participants’ capacity to provide LM experiences, the present results also support the findings of a few investigations that have examined introversion-extraversion and memory (e.g., Gudjonsson et al., 1999; Mclaughlin & Kary, 1972). Theoretically, the hypersensitivity characteristic of participants with traits of introversion and neuroticism negatively impacted their ability to encode the event proper, thus leading to LM experiences (Hervé et al., under review).

Although certain personality attributes were related to the participants’ capacity to provide LM experiences, there was no significant association between psychopathy and the participants’ ability to provide LM experiences. This was likely due to the high rate of psychopathy in the present investigation and the fact that many of the nonpsychopathic participants had a high degree of psychopathic traits (see below). However, a clear pattern indicated psychopathic participants reported better memory for all of their provided experiences, particularly the instrumental and reactive acts of violence, in comparison to nonpsychopathic participants. In line with the THEORY, the hyposensitivity characteristic of psychopathy (Ellis, 1987; Hare, 1965, 1978; Jacobson & Gottman, 1998; Zuckerman, 1979) presumably influenced psychopathic participants to seek out arousing experiences such as committing acts of violence. Further, due to their
hyposensitivity, psychopathic participants likely focused on the most arousing aspects (i.e., central event related details [i.e., the violence]) of the events at the relative exclusion of non-arousing information (e.g., peripheral non-event related subjective details; Blascovich, 1990, 1992; Feldman, 1995), hence their better reported memory for such experiences. In contrast, hypersensitive participants, given their preoccupation with avoiding arousal, should not have focused on the most arousing aspects of the scene but on their subjective feelings. Unfortunately, as no measure of arousal sensitivity was utilized in the present investigation, it was only assumed, in comparison to the psychopathic participants, the nonpsychopathic participants were relatively hypersensitive to arousal.

In addition to supporting elements of the THEORY, the between-subject psychopathy and memory results are consistent with recent but non-researched speculations on the topic. For example, Porter et al. (2001) proposed psychopaths should have superior memory for their extreme violent acts in comparison to nonpsychopaths considering their affective deficit should preclude them from experiencing severe state dissociation and dissociative amnesia. Similarly, Swihart et al. (1999) noted, due to the orientating response characteristic of psychopaths, they would be likely to remember their crimes and to not develop dissociative amnesia. Suggestions that psychopaths should have good memory are also found in the more remote literature. For example, Sherman (1957) commented, "among the more verifiable alleged characteristics [of psychopaths] is the contention that the psychopath has a superior memory" (p. 721). Similarly, Sherman reviewed the work of Pennington (1954) who concluded psychopaths' "memories of past events can be considered excellent" (p.722). Further,
Lindner (1944) discussed the "symptomatic constellations" of the psychopathic personality, which included excellent memory for remote events (p. 60).

Consistent with the THEORY, and in line with traditional (Cleckley, 1941) and contemporary (Porter et al., 2001; Pollock, 1999; Swihart et al., 1999) perspectives on psychopathy, the psychopathic participants reported significantly higher levels of positive valence during the commission of instrumental acts of violence and reported significantly less symptoms of PTSD in relation to such acts in comparison to nonpsychopathic participants. As reports of positive valence during such violence was associated with the interpersonal and affective characteristics of psychopathy as opposed to the behavioral features of the disorder and the disorder itself, psychopathic individuals arguably enjoy committing violence because they are affectively flawed as opposed to being psychopaths, per se. Core characteristics such as callousness, shallow affect, lack of empathy (Hare, 1991, 2003), and a hyposensitivity to arousal (Hervé et al., 2003) should not be associated with a stress response in psychopaths, particularly in relation to planned violence experienced with positive affect.

A few anecdotes compliment the present significant valence and PTSD symptoms results and are consistent with the affective deficit characteristic of psychopathy (Abbott, 2001). As an example, one psychopathic participant provided the following preamble in relation to one of his perpetrated acts of violence: "This is really shameful, I mean, I don’t know if you’re prepared to hear this, I mean, I’ve talked about this hundreds of times, you know, so if it doesn’t seem like I have a lot of emotion...it’s not true, alright.” Another psychopathic participant, demonstrating his lack of empathy, commented the following after discussing his memory for a perpetrated murder: “He’s dead, who cares?”
Similarly, another psychopathic participant stated the following: “I just planted a guy and I really didn’t give a shit. I don’t know if that means anything, but I didn’t give two shits throughout the night [after the murder], slept like a baby.” As another example, subsequent to an interviewer asking a psychopathic participant to provide a memory for a subjectively disturbing experience, the participant responded by stating “I have never experienced a traumatic event.”

Returning to the issue of psychopathy and memory, it is proposed that psychopaths’ lack of stress response to committing violence is positively associated with their memory, particularly their memory for instrumental violence. Indeed, positive affect during instrumental violence was positively associated with memory for such experiences and with the participants’ interpersonal and affective factor on the PCL-R (Hare, 1991, 2003). As one psychopathic participant reported, “I think about everything I do before I do it…and I remember everything that I do.”

In summary, based on how the present results support certain elements of the THEORY, a clinical-forensic assessor should expect high quality recall from a violent offender when the followings conditions related to predisposing factors are met: (a) the offender is psychopathic; (b) the offender does not display traits of neuroticism; (c) the offender displays qualities of agreeableness and conscientiousness; and (d) the offender has a low trait dissociative disposition. An assessor should expect high quality memory when the following conditions related to precipitating factors are met: (a) the offender commits an act of instrumental violence; (b) the offender views the act of violence as affectively positive; and (c) the offender does not dissociate. In regards to perpetuating factors, an assessor should expect high quality recall when the offender had previously
recalled the event a considerable number of times (i.e., either to others or to themselves [e.g., intrusion symptom of PTSD]).

Conversely, a clinical-forensic assessor should expect relatively poor quality recall from a violent offender when the followings conditions related to predisposing factors are met: (a) the offender is nonpsychopathic; (b) the offender displays traits of neuroticism; (c) the offender does not display qualities of agreeableness and conscientiousness; and (d) the offender has a high trait dissociative disposition. An assessor should expect poor quality memory when the following conditions related to precipitating factors are met: (a) the offender commits an act of reactive violence; (b) the offender views the act of violence as affectively negative; and (c) the offender dissociates. In regards to perpetuating factors, an assessor should expect poor quality recall when the offender had not previously recalled the event (i.e., either to others or to themselves).

Interestingly, negative affect in the short-term (i.e., valence, state dissociation) was related to reports of poor quality memory and negative affect in the long-term (i.e., intrusive symptoms of PTSD) was related to reports of high quality memory. Presumably, as suggested by others (e.g., van der Kolk et al., 1996), due to the mental shock of an event (e.g., reactive violence), although the event is encoded, it is not fully processed initially. In time, however, due to intrusion symptoms of PTSD and rehearsal to others, a version of the event becomes more fully processed and a clearer narrative emerges.

Limitations and Suggestions for Future Research

There were a number of limitations to the present study that deserve attention. The most obvious drawback is the fact that the veracity of the participants' memories is
unknown. Although there was no a priori reason to expect most of the participants would deliberately distort their memories, the fact remains deception and manipulation are cardinal components of a criminal lifestyle and, thus, the participants themselves. Psychopaths, in particular, are known for their tendency towards dissimulation and they may have consciously lied about some of their autobiographical experiences for no other reason than mere duping delight (Ekman, 1992; Peticlerc et al., 2000). An anecdotal example from the present investigation is a case in point. One psychopathic participant discussed at length about how he violently damaged his apartment in a LSD induced rage state. He talked about a number of acts including picking up his stove and hurling it across his apartment. He later discussed how, after he came down from his LSD ‘trip’, his associate began cooking on his stove. Perplexed, the interviewer asked how his associate could have cooked on his stove after he finished informing her that he had thrown it across his room in his apartment. Undisturbed by his obvious inconsistency, the participant stated the following: “Oh, that’s weird, that’s right, he was, how did that happen? See that’s what I mean. That’s why memories get screwed up when you’re on acid, man. I don’t remember how that worked.”

Although, as the aforementioned anecdote illustrates, it is likely at least some of the participants deliberately distorted their memories, it is doubtful this was a rampant problem. Save for duping delight, there were no strong reasons to expect most of the participants deliberately lied or withheld information. It was hoped the volunteer and confidential nature of the present investigation provided a context in which the participants could discuss their past experiences in a sincere fashion. Of course, whether they actually did so is an empirical question. In this regard, future plans for the present
data set include assessing the credibility of the participants' narrative memories via Criterion Based Content Analysis (CBCA; Porter & Yuille, 1995, 1996; Undeutch, 1982; Vrij & Akehurst, 1998) and examining the veracity of some of their memories through a review of existing correctional file information and interviews with collaterals. In terms of the latter, establishing collateral accounts of the participants' provided memories are likely to prove to be a difficult enterprise. Although some research on trauma/crime and memory has demonstrated it is possible to attain a semi objective record of the event in question (e.g., Cuthshall & Yuille, 1989; Thompson et al., 1997; Yuille & Cutshall, 1986), other research has focused on the more easily attained goal of corroborating whether the event in question simply occurred (e.g., Krinsley, 2003). Either way, corroborated accounts at a rate of at least 70% (usually higher) are consistently reported and thus, it is expected at least some of the events the participants provided will receive some level of corroboration. The memories most likely to receive collateral information will be the violent experiences for which the participants have been convicted. Once these memories are identified and collateral information is attained, an examination of their veracity will be conducted.

The present study is also limited by its reliance on self-report inventories. However, as with past research on PTSD in offending populations, the use of such techniques has the benefits of ease of administration and low cost (e.g., Burton et al., 1994). Irrespective of the self-report nature of the IES (Horowitz et al., 1979) and the fact it does not tap symptoms of hyperarousal, it has been shown to be a highly effective screening tool for PTSD using both DSM-IV (APA, 1994) and International Classification of Disease (10th ed.; ICD-10, World Health Organization, 1993) criteria as
criterion measures (Sundin & Horowitz, 2002). For example, Wohlfarth et al. (2003) examined a sample of Dutch crime victims and showed that, when an IES cut off of 24 was utilized, the IES was associated with perfect (1.00) sensitivity and modest specificity (.82) in relation to DSM-IV PTSD criteria. Various IES cut-offs have been used, ranging from 19 (Horowitz, 1982) to 35 (Neal et al., 1994) with varying differences in specificity and sensitivity, depending on the sample examined. The IES cut-off of 28 used in the present research falls somewhere in the middle of the range found in the literature and arguably represents a conservative cut-off for potential PTSD. Indeed, if a lower cut-off were used, the possible rates of PTSD in relation to the different provided experiences would have been considerably higher. Issues related to the self-report nature of the IES aside, future plans for the present data set involve following up high IES scorers (i.e., at or higher than 28) and administering the Clinician Administered Assessment of PTSD interview (CAPS; Blake et al., 1990) to assess for possible PTSD diagnoses. This follow up study will be the most comprehensive investigation of PTSD in offenders ever conducted.

Another limitation of the present investigation concerns the fact that central versus peripheral details of the participants’ provided memories were not examined. In part, this issue was not investigated as the participants’ narratives are in the process of being transcribed. After the transcription process is completed, the narratives will be coded for quality and quantity of detail using a procedure specifically developed for this purpose (Yuille et al., 1999). However, coding the narratives for central versus peripheral information will likely prove problematic. Although this can easily be done in analogue research (e.g., Loftus & Burns, 1992), the issue is far more complex in field research.
Indeed, as Brown (2003) has stated, “in a visually dynamic environment [such as the field] it is difficult to distinguish purely central and peripheral information...in a dynamic environment, information that could be defined as central one moment could also be defined as peripheral information at a later time, depending upon how eyewitnesses shift their attention over time” (p. 104). Although there will be difficulties, an attempt will be made to code the participants’ memories for central versus peripheral information.

The present investigation is also limited by its failure to rule out organic causes of amnesia such as traumatic brain injury, which has been shown to be accompanied by posttraumatic amnesia (Klein et al., 2003). Thus, as stated earlier, it is possible that some of the reports of amnesia in the present investigation were due to brain damage or intoxication. Unfortunately, it was not practically feasible to assess for the former or exclude memories of the latter. Regarding the former issue, even if an exhaustive file review were conducted, it is doubtful all cases of brain damage would have been identified because the CSC does not reliably assess such information. Clearly, future field research on memory that controls for organic causes of amnesia is needed.

The reliance on CSC psychologists to conduct PCL-R (Hare 1991, 2003) assessments was another limitation of the present investigation. It was, unfortunately, not feasible for the PCL-R information to have been gathered in any other fashion. Although the lower than expected estimate of interrater reliability is a concern, the correlation was confounded for a few reasons. For example, in a few cases, the second PCL-R assessment was conducted many years after the initial assessment. It is entirely possible that the different PCL-R score at the second assessment was based, in part, on more correctional file information that accumulated during the intervening years since the initial PCL-R
assessments. That is, the divergent scores across the assessment period may have been a reflection of the amount of information available as opposed to problems with interrater reliability per se (Dercole, 2003, personal communication). Alternatively, relatively low interrater reliability may have been, in part, related to inadequate training and experience of the CSC assessors. Indeed, the level of training and supervision provided to CSC psychologists varies by the region, cluster, and institution. It used to be the case all CSC psychologists were required to attend a 2-day Multi-Health Systems workshop given by psychopathy experts (e.g., Drs. Robert Hare or Stephen Hart) and to have proved evidence of reliability via 10 file and video-based PCL-R assessments before any clinical PCL-R assessments were conducted. In fact, the present author was trained in this fashion. However, anecdotal evidence suggests, at present, such stringent training is by no means standard and many recently hired CSC psychologists have only received ‘in house’ training on the PCL-R. Such training is acceptable to some (Hare, 2003) and it is noted to be the ethical responsibility of the assessor and their respective governing body (e.g., the College of Psychologists) to decide their competency in their given area of practice. However, such training may have been inadequate for the present purposes. Another reason for the comparatively low correlation stems from the relatively small number of double ratings available. Had there been a larger number of double ratings, a stronger correlation would likely have been found. Although the interrater reliability of the PCL-R in the present research is a concern, none of the analyses related to psychopathy issues turned out to be significant in the non-hypothesized direction. Nevertheless, future research in the area of psychopathy and memory should utilize stringent PCL-R training and should attempt to gather a higher percentage of double
Irrespective of issues related to interrater reliability, the relatively high prevalence of psychopathy was a limitation of the present investigation. Indeed almost 40% of the present sample met the criteria for psychopathy, a rate considerably higher than what is typically found in North American prisons (i.e., 15-25%; Hare, 1991, 2003). The psychopathic participants’ eager display of their core characteristics was quite telling throughout the interview process. For example, at the outset of an interview, one participant made the following statement, “Ya know, I’m 96th percentile on the PCL-R, eh.” Perplexed by this ‘bragging’, upon retrieving the participant’s PCL-R information from his correctional file, the interviewer noticed the participant was ‘only’ at the 91st percentile on the PCL-R. This display of ‘grandiosity’ is interesting considering most offenders are displeased to have high PCL-R scores in the contexts of risk assessments and National Parole Board hearings. The high prevalence of psychopathy could, in part, be explained by the fact that psychopathic inmates are more likely to be incarcerated in maximum-security institutions relative to other inmates (Strachan, 1993). Core affective and behavioral characteristics such as shallow affect, impulsivity, and poor behavioral controls (Hare, 1991, 2003) indicate psychopathic offenders have a difficult time controlling their behavior, even in structured environments such as prisons. In fact, research has demonstrated, relative to nonpsychopathic inmates, psychopathic inmates receive a disproportionate number of institutional charges and convictions, particularly for violence (Hare, 2003) and the threat of violence (Hildebrand, De Ruiter, & Nijman, 2004). Considering both medium-security and minimum-security penitentiaries have little
tolerance for violence, when inmates act out, they are quickly upwardly transferred to maximum-security institutions.

The relatively high prevalence of psychopathy could also be partially explained by the nature of the research and how some of the participants were informed of the research (e.g., 'word of mouth'). The main component of the study was an engaging semi-structured interview process, which involved the participants talking at length about themselves and their histories. Considering the glibness, superficial charm and egocentricity characteristic of psychopathy (Hare, 1991, 2003), such a context might have been particularly appealing for the psychopathic participants in the present investigation. This factor may also have been influenced by the nature of the interviewers. Most of the interviewers were female and this reality did not take long for the participants to notice. For example, it was not uncommon to see a crowd of willing research participants hovering around the interviewers in the offenders’ living units both prior to and upon completion of the individual interviews.

Not only was there a high prevalence of psychopathy, the mean PCL-R (Hare, 1991, 2003) score of the entire sample was close to one standard error of measurement for a diagnosis of psychopathy and, therefore, many of the nonpsychopathic participants displayed a considerable number of psychopathic characteristics. For example, one nonpsychopathic participant, who was formally employed as a hit man, made the following callous statement about one of his murderous acts: “I wasn’t wearing a mask...when I started working on her, I took off the mask. Then she knew exactly what was going on...she was going to die. It was just a matter of when...I was paid $150, 000 to give a message, a message that was very violent, very noticeable...my contract was to
inflict as much pain as I possibly could...it’s not at all pleasant, it’s not even nice to talk about. But it is what I was paid to do.” When this participant was asked how he was feeling when he was torturing the victim before her death, he made the following comment, “…thinking yes, but feeling, no. I can detach myself from it. It’s just a job. That sounds pretty callous but that’s how I was able to do it.” Similarly, another nonpsychopathic participant, previously employed as a drug debt collector, made the following statement to the present author in a state of amusement: “I had them [garden shears] in my hand...I put them around his fingers...the blade part was on his fingers like this. I was in the process of trying to save him a hospital bill (laughs)...I’m paid to do this, you know. I’m a capitalist just like a lot of people. And, you know, I capitalize and make some money. This is what I do, you know, what I mean. You’re a psychologist. There’s people that are doctors. Well, I collect money and sell drugs. Mine’s not legal, but it pays.” These anecdotes illustrate many of the nonpsychopathic participants in the present investigation demonstrated a considerable amount of psychopathic characteristics. Thus, instead of comparing ‘pure’ psychopathic participants to ‘pure’ nonpsychopathic participants, the psychopathy analyses for the present investigation largely involved comparisons between psychopathic participants and participants with many traits of psychopathy. This could partially explain some of the lack of differences between psychopathic and nonpsychopathic participants in the present investigation. Future research on this topic should attempt to assess participants with more discrepant PCL-R scores to lessen this problem.

Another limitation of the present research concerns the delay between when the participants experienced their events and when they discussed them at the time of data
collection. Indeed, all the provided memories were, on average, over 10 years old and some research has shown delay has a debilitating effect on recall (Ebbinghaus, 1885). Further, due to the delay, it is possible that symptoms presented at the time of data collection (e.g., PTSD symptoms) had an effect on the participants’ perceptions of the events in terms of their retrospective reporting of their emotional reactions (Halligan et al., 2003). Future studies in this area should attempt to assess participants closer in time to their precipitating events in question to alleviate these issues.

Finally, the type-one error rate is potentially elevated due to the liberal number of analyses conducted. However, this is not a concern for a few reasons. First, most of the analyses were hypothesized. Second, whenever possible, corrections were made to keep the type one error rate to a minimum (e.g., the Greenhouse-Geisser correction was used when appropriate; Welch’s t tests were conducted when appropriate). Third, many of the analyses related to separate phenomena. Thus, it is arguably the case that the type-one error rate is not a major concern.

**Implications for the Criminal Justice System**

The above noted limitations notwithstanding, the results of the present investigation have a number of implications for the criminal justice system. Of course, in light of the aforementioned limitations and the fact that much of the present research is novel, the following implications should be viewed cautiously until more research is conducted. In the following sections, these tentative implications are discussed. Issues related to the assessment and treatment of offenders are discussed first followed by issues related to memory and credibility and, finally, expert testimony.
Issues of Assessment and Intervention

The present research has a few applications for the assessment of incarcerated male offenders. Institutional psychologists and other mental health professionals within the prison context are frequently asked to assess inmates for a variety of issues (e.g., risk to recidivate, diagnostic). For example, within many regions in the CSC, particularly the Pacific region, inmates are routinely assessed for psychopathy with the PCL-R (Hare, 1991, 2003). Such assessments are incorporated into risk assessment reports and are used for a variety of institutional means. Research has come along way since the statement that psychopathy is "the wastebasket of modern psychiatry" and Sherman's (1957) proposition that the "theoretical chaos" regarding the construct of the psychopathic personality is due to the lack of research attention to the disorder (p. 721). In fact, psychopathy is now the most researched personality disorder and has many implications for correctional psychology (Hare, 1996, 2003). Some of the present results have utility for the assessment of psychopathy in such contexts. For example, based on the results of the psychopathy analyses, if an offender states he experienced positive affect during the commission of an instrumental act of violence and was not negatively affected by such violence, such information could be used as partial basis to score certain items on the PCL-R (e.g., lack of empathy, shallow affect). Of course, many inmates are skilled at discussing their crimes during risk assessment interviews in a socially acceptable way. Assessors are urged to pay close attention to the wording the subjects of the assessments use when talking about their crimes. For example, one psychopathic participant from the present investigation (i.e., 92\textsuperscript{nd} percentile on the PCL-R) noted the following in relation to one of his perpetrated acts of violence: "I was really fucked up [on substances]. What I
did was wrong, um, can’t justify it for any reason. Nevertheless, I’m guilty and regret it with all my being.” Perhaps this participant failed to realize how he contradicted himself (e.g., externalizing blame on substance use) in an attempt to show the interviewer he had some remorse for his violent actions. Such contradictions could be quite telling for the assessor. Further, assessors need to be clever in their choice of wording by using indirect questioning tactics to elicit a response from the offender. For instance, instead of asking the offender: “did you experience positive valence when you were stabbing the bank teller?” the assessor would be better inclined to ask a more general question such as “do you remember feeling aroused while you were stabbing the teller?” followed by “how do you normally feel when you are aroused?” etc.

The fact that a considerable number of the participants reported extreme levels of PTSD symptoms in relation to their subjectively disturbing experiences and, to a lesser extent, their acts of perpetrated violence suggests PTSD is a considerable problem among male incarcerated offenders. Cauffman et al. (1998) have proposed that trauma and subsequent PTSD symptoms in offenders may be causally related to their antisocial behavior (e.g., impulsivity) and, therefore, should be, in part, the focus of intervention (also see McMackin, Leisen, Cusack, LaFratta, & Litwin, 2002; Spitzer et al., 2001; Steiner et al., 1997). Kulka et al. (1995) have expressed similar sentiments and suggest it would “seem prudent to ensure that the relationship between offence-related PTSD symptoms and the individual’s offending history and reoffending potential are fully understood before any treatment targeting the PTSD symptoms is undertaken” (p. 139). Indeed, there may be strong relationships between PTSD and offending that need to be the focus of intervention. For example, some research has shown inmates with PTSD are
significantly more likely to have a comorbid APD diagnoses than inmates without PTSD and researchers have suggested trauma-specific symptoms should be teased apart from non-trauma-specific symptoms via a comprehensive assessment process (Gibson et al., 1999). Gibson et al. reported, "the finding that inmate rates of PTSD are substantially higher than rates in the general population makes salient the need for a better understanding of PTSD in a prison sample" (p. 474). Others have proposed that the proper assessment of PTSD in offenders may facilitate appropriate intervention and aid in rehabilitation efforts (Harry & Resnick, 1986). Although this is likely to be the case, treatment facilitators need to be cognizant of the fact, due to the stress associated with committing violence and the subsequent activities (e.g., arrest, trial, and incarceration), it is often difficult to distinguish whether the development of PTSD symptoms are the cause or product of the act of violence (Cartwright, 2001).

The present findings regarding the positive relationship between PTSD symptoms and memory also have some implications for the treatment of PTSD in offending samples. On the basis of research findings demonstrating a positive association between memory and PTSD, some researchers have suggested amnesia may protect the development of PTSD and propose treatment should, therefore, focus on disrupting the memory for the precipitating event via pharmacological intervention such as propranolol (i.e., a protein synthesis inhibitor; Klein et al., 2003; Nader, Schafe, & Le Doux, 2000; Pitman et al., 2002). Other researchers have offered more ethical and practical suggestions to help eliminate, or at least reduce, the unwanted intrusive thoughts of past stressful experiences. For example, based on their results showing benefits of focused self-distraction, Wegner et al. (1987) suggest, when individuals want to avoid thinking
about a past event, they would be better suited to focus on a single distracter as opposed to general cognitive avoidance per se. Similarly, other researchers have suggested intervention for PTSD should focus on altering the negative appraisals associated with intrusions (Ehlers & Clark, 2000; Halligan et al., 2003).

Based on some research, another intervention goal should be to have the consumer of therapy develop a clear narrative of the precipitating event that led to the development of PTSD symptoms. For example, Amir, Stafford, Freshman, and Foa (1998) examined a sample of female victims of sexual assault and found less developed (e.g., less articulated) narratives of the sexual assaults were related to increased PTSD symptom severity. On the basis of their research on the subject (e.g., that there is an inverse relationship between narrative articulation and the chronicity of PTSD), Amir et al. suggested therapeutic intervention for PTSD should focus on organizing clear narratives of the precipitating trauma for successful emotional processing. Halligan et al. (2003) have made similar suggestions (also see Foa & Hearst-Ikeda, 1996; Foa & Riggs, 1993; van der Kolk & Fisler, 1995).

**Issues of Memory and Credibility**

In addition to traditional correctional assessment and intervention, the present research has a few implications for the assessment of credibility. Broadly speaking, credibility assessments are conducted by many players in the criminal system tasked with evaluating the credibility of victims', witnesses', and perpetrators' accounts of crime, particularly violent crime (Memon, Vrij, & Bull, 1998). For example, correctional psychologists routinely assess the credibility of incarcerated offenders' memories for their crimes in the context of conducting risk assessments for the National Parole Board.
Similarly, clinical-forensic psychologists often assess the credibility of witnesses’ and victims’ accounts of a variety of crimes such as sexual assault (Yuille, 1998). Further, not uncommonly, psychologists, testifying as expert witnesses, educate the triers of fact regarding issues related to credibility so the triers themselves can be in a better position to assess the credibility of an account of a given witness. To date, one of the most valid, reliable, and widely used techniques to assess credibility in these contexts is Statement Validity Analysis (SVA; Horowitz, 1991). As part of conducting SVA, clinicians are required elicit a statement of the crime in question, via a semi-structured interview such as the Step-Wise Interview (Yuille, 1990; Yuille et al., 1999) the Cognitive Interview (Fisher, 1995; Fisher & Geiselman, 1992), or the Inferential Interview (Colwell et al., 2002) as was done in the present investigation. After the narrative is exhausted for detail, Criterion Based Content Analyses (CBCA) is employed (Vrij, Akehurst, Soukara, & Bull, 2002). This technique is primarily based on Udo Undeutch’s clinical-forensic experiences assessing the credibility of child witnesses’ accounts of alleged crimes in Germany (Undeutch, 1982; Vrij & Akehurst, 1998). Based on such experiences, he formulated the Undeutch hypothesis, which essentially suggests qualitative and quantitative differences exist between individuals’ memories of real events and memories of events not actually experienced (Colwell, Hiscock, & Memon, 2002; Porter & Yuille, 1995). CBCA has been used to explore these qualitative and quantitative aspects of memory via an examination of a number of criteria (Stellar & Koehnken, 1989). Some laboratory (Colwerll et al., 2002; Porter & Yuille, 1996) and field research (Lamb et al., 1997) has shown that certain criteria, such as the amount of detail a witness can provide (i.e., an appropriate amount of detail), can reliably distinguish credible from non credible accounts (for
review, see Vrij & Akehurst, 1998; Yuille, 1988). Similarly, findings from the source monitoring literature consistently demonstrate memories of actual experiences have higher phenomenal qualities (e.g., detail, vividness) than memories of imagined experiences (Johnson, Hashtroudi, & Lindsay, 1993). Theories behind such research suggest: (a) it is extremely difficult to have a detailed narrative of a non experienced event, as such details are not actually stored in memory (Porter & Yuille, 1995); and (b) deceptive accounts are accompanied by an increase in physiological arousal (e.g., anxiety), therefore increasing the possibility of detection (Colwell et al., 2002). Of course, if a witness practices his/her false account, such details will be available upon recall and research has shown that deceivers, trained in the use of CBCA, can fool evaluators, or at least obtain high CBCA scores resembling those of truth tellers (Vrij et al., 2002; Vrij, Akehurst, Soukara, & Bull, 2004; Vrij, Kneller, & Mann, 2000). Such examples highlight the difficulties associated with the assessment of credibility.

When evaluating the credibility of an account of interest, typically a crime, the assessor should also elicit a narrative of a different experience, usually a positively valenced event, to assess the cognitive and linguistic capacity of the witness (Cooper, 1999; Yuille, 1990; Yuille et al., 1999). Based on the present results, in conjunction with a growing body of field research (Cooper et al., 1999; Thompson et al., 1997), one would expect credible accounts of trauma to not have less detail than accounts of positively valence experiences. Similarly, based on the present findings, in the nonpsychopathic perpetrator context, one should expect instrumental acts of violence to be better recalled than reactive acts of violence. Thus, during a risk assessment interview, for example, if a nonpsychopathic offender provides a detailed description of a reactive murder but claims
dissociative amnesia for an instrumental physical assault, the institutional psychologist should have cause for concern. Of course, an appropriate amount of detail is only one CBCA criteria and CBCA is just one component of SVA. Such a technique should never be utilized in isolation. The more information the evaluator has (e.g., in terms of how memory works under different circumstances), the better position, he/she will be in to assess the credibility of a given account of a crime.

**Expert Testimony**

Not only do psychologists educate the triers of fact about issues related to the credibility of memories, psychologists often discuss how memory works under different circumstances, particularly concerning instances of trauma and crime. As there has not been a great deal of research conducted on offenders’ memories for their crimes and traumatic experiences, when the memory of an offender is an issue within a trial, expert psychologists, in an attempt to educate the triers of fact, often generalize the research on memory in victims and witnesses to the perpetrator context. Although it is logical to assume many of the strong associations apparent in the victim and witness literature would hold true with perpetrators of crime (e.g., the association between dissociation and amnesia), little research has addressed the validity of these generalizations. The present research was formulated, in part, to facilitate a larger knowledge base to which expert psychologists could draw from. For example, based on the present results, in conjunction with some of the past research and theorizing on the topic, experts could discuss the fact that instrumental acts of violence are better recalled than reactive acts of violence and that the former type of violence is experienced with less negative valence than the latter. They could also discuss how state dissociation may negatively influence a perpetrators’
memory for a past experience and that increased rehearsal may facilitate recall for both experiences of trauma and acts of perpetrated violence.

**Conclusion**

In support of certain assumptions underlying Hervé et al.’s (under review) theory of eyewitness memory, the present investigation demonstrated a number of predisposing, precipitating, and perpetuating memory influencing variables were associated with the participants’ reported quality and quantity of their provided experiences. These findings indicate a number of situational and individual difference variables affected the participants’ memories, thus providing a better understanding of the factors underlying the variable nature of eyewitness memory in offenders. As noted by Anderson, Cohen, and Taylor (2000), “the variability of personal memories is a relatively neglected aspect of autobiographical memory despite its obvious practical and theoretical importance. Practitioners in the fields of oral history or witness testimony need to take account of the existence and nature of variability and to understand the factors that influence it. Theories of representation and retrieval need to predict and explain variability of recall” (p. 452). As with the present investigation, future research on the subject should focus on how memories are affected by predisposing, precipitating and perpetuating individual differences.
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Appendix 1: Peritraumatic Dissociative Events Questionnaire

(Marmar & Weiss, 1994)

Instructions: I’d like you to try to recall as best you can how you felt and what you experienced at the time (the event in question) happened, including the few minutes just before. Now, I’m going to ask you some specific questions about how you felt at that time.

Note: DK=don’t know, 01= absent or false, 02= sub-threshold, 03= threshold

1. (At that time) Did you have moments of losing track of what was going on—that is, did you “blank out”, “space out”, or in some other way not feel that you were a part of the experience?
   DK 01 02 03

2. (At that time) Did you find yourself going on “automatic pilot”—that is, doing something that you later realized you had done but hadn’t actively decided to do?
   DK 01 02 03

3. (At that time) Did your sense of time change during the event—that is, did things seem unusually speeded up or slowed down?
   DK 01 02 03

4. (At that time) Did what was happening seem unreal to you, as though you were in a dream or watching a movie or a play?
   DK 01 02 03

5. (At that time) Were there moments when you felt as though you were a spectator watching what was happening to you—for example, did you feel as if you were floating above the scene or observing as an outsider?
   DK 01 02 03

6. (At that time) Were there moments when your sense of your own body seemed distorted or changed—that is, did you feel yourself to be unusually large or small, or did you feel disconnected from your body?
   DK 01 02 03
7. (At that time) Did you get the feeling that something that was happening to someone else was happening to you? For example, if you saw someone being injured, did you feel as though you were the one being injured, even though this was not the case?

8. Were you surprised to find out after the event that a lot of things had happened at the time that you were not aware of, especially things that you felt you ordinarily would have noticed?

9. (At that time) Were there moments when you had difficulty making sense of what was happening?

10. (At that time) Did you feel disoriented, that is, were there moments when you felt uncertain about where you were or what time it was?
Appendix 2: The Affect Grid

Russell et al. (1980)

Please rate how you are at the time of the event in question (before, during, or after) by placing an “X” in the appropriate box.
### Appendix 3: Memory Characteristics Questionnaire

(Johnson et al., 1988)

1. My memory for this event is: 1 2 3 4 5 6 7
   - *dim*
   - *sharp/clear*

2. My memory for this event is: 1 2 3 4 5 6 7
   - *black & white*
   - *entirely color*

*My memory for this event involves:*

3. Visual detail: 1 2 3 4 5 6 7
   - *little or none*
   - *a lot*

4. Sound: 1 2 3 4 5 6 7
   - *little or none*
   - *a lot*

5. Smell: 1 2 3 4 5 6 7
   - *little or none*
   - *a lot*

6. Touch: 1 2 3 4 5 6 7
   - *little or none*
   - *a lot*

7. Taste: 1 2 3 4 5 6 7
   - *little or none*
   - *a lot*

8. Overall vividness is: 1 2 3 4 5 6 7
   - *vague*
   - *very vivid*

9. My memory for this event is: 1 2 3 4 5 6 7
   - *sketchy*
   - *very detailed*

10. Order of events is: 1 2 3 4 5 6 7
    - *confusing*
    - *comprehensible*

11. Story line is: 1 2 3 4 5 6 7
    - *simple*
    - *complex*

12. Story line is: 1 2 3 4 5 6 7
    - *bizarre*
    - *realistic*

13. My memory for the location where the event takes place is: 1 2 3 4 5 6 7
    - *vague*
    - *clear/distinct*
14. General setting is:  
1 2 3 4 5 6 7  
unfamiliar familiar

15. Relative spatial arrangement of objects in my memory for the event is:  
1 2 3 4 5 6 7  
vague clear/distinct

16. Relative spatial arrangement of people in my memory for this event is:  
1 2 3 4 5 6 7  
vague clear/distinct

My memory for the  
17. time when the event takes place is:  
1 2 3 4 5 6 7  
vague clear/distinct

18. year when the event takes place is:  
1 2 3 4 5 6 7  
vague clear/distinct

19. season when the event takes place is:  
1 2 3 4 5 6 7  
vague clear/distinct

20. day when the event takes place is:  
1 2 3 4 5 6 7  
vague clear/distinct

21. hour when the event takes place is:  
1 2 3 4 5 6 7  
vague clear/distinct

22. The event seems:  
1 2 3 4 5 6 7  
short long

23. The overall tone of the memory is:  
1 2 3 4 5 6 7  
negative positive

24. In this event I was:  
1 2 3 4 5 6 7  
a spectator participant

25. At the time, the event seemed like it would have a serious implication:  
1 2 3 4 5 6 7  
not at all definitely
26. Looking back, this event did have serious implications:

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27. I remember how I felt at the time when the event took place:

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<th>7</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>not at all</td>
<td>definitely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28. Feelings at the time were:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>negative</td>
<td>positive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

29. Feelings at the time were:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not intense</td>
<td>intense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

30. As I am remembering now, my feelings are:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not intense</td>
<td>intense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

31. I remember what I thought at the time:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not at all</td>
<td>clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

32. This memory reveals or says about me:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not much</td>
<td>a lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

33. Overall, I remember this event:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hardly</td>
<td>very well</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

34. I remember events relating to this memory that took place in advance of the event:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not at all</td>
<td>clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

35. I remember events relating to this memory that took place after the event:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not at all</td>
<td>clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

36. Do you have any doubts about the accuracy of your memory for this event:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a great deal of doubt</td>
<td>no doubt whatsoever</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
37. Since it happened, I have thought about this event:

1 2 3 4 5 6 7
not at all many times

38. Since it happened, I have talked about this event:

1 2 3 4 5 6 7
not at all many times

39. About when did this event happen? Circle one:

just today yesterday few days ago last week few weeks ago
last month few months ago
last year
longer (if childhood, indicate age:___)
**Appendix 4: Impact of Events Scale**

(IES; Horowitz et al., 1979)

Below is a list of comments made by people about stressful life events and the context surrounding them. Read each item and decide how frequently each item was true for you **DURING THE PAST SEVEN (7) DAYS** regarding ___________ (Insert stressor event here). If the item did not occur during the past seven days, choose the NOT AT ALL option. Using the following scale of 0 to 5, circle the number of the response which best describes that item. Please complete each item.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I thought about it when I didn't mean to.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>I avoided letting myself get upset when I thought about it or was reminded of it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>I tried to remove it from memory.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>I had trouble falling asleep or staying asleep, because of pictures of thoughts that came into my mind.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>I had waves of strong feelings about it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>I had dreams about it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I stayed away from reminders of it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>I felt as if it hadn't happened or wasn't real.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>I tried not to talk about it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Pictures about it popped into my mind.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Other things kept making me think about it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>I was aware that I still had a lot of feelings about it, but I didn't deal with them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>I tried not to think about it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Any reminder brought back feelings about it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>My feelings about it were kind of numb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 5: Dissociative Experiences Scale

(Bernstein-Carlson & Putman, 1993)

Directions: This questionnaire consists of twenty-eight questions about experiences that you may have in your daily life. We are interested in how often you have these experiences. It is important, however, that your answers show how often these experiences happen to you when you are not under the influence of alcohol or drugs. To answer the questions, please determine to what degree the experience described in the question applies to you and circle the number to show what percentage of the time you have the experience.

Example:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

(never) (always)

Date __________________________ Age ______ Sex: M F

1. Some people have the experience of driving or riding in a car or bus or subway and suddenly realizing that they don’t remember what has happened during all or part of the trip. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

2. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear part or all of what was said. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

3. Some people have the experience of finding themselves in a place and having no idea how they got there. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

4. Some people have the experience of finding themselves dressed in clothes that they don’t remember putting on. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
5. Some people have the experience of finding new things among their belongings that they do not remember buying. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

6. Some people sometimes find that they are approached by people who they do not know who call them by another name or insist that they have met them before. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they were looking at another person. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

8. Some people are told that they sometimes do not recognize friends or family members. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

9. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

10. Some people have the experience of being accused of lying when they do not think that they have lied. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

11. Some people have the experience of looking in a mirror and not recognizing themselves. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
12. Some people have the experience of feeling that other people, objects, and the world around them are not real. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

13. Some people have the experience of feeling that their body does not seem to belong to them. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving that event. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

15. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

18. Some people find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

19. Some people find that they sometimes are able to ignore pain. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
20. Some people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time. Circle a number to show what percentage of the time this happens to you.

  0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

21. Some people sometimes find that when they are alone they talk out loud to themselves. Circle a number to show what percentage of the time this happens to you.

  0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

22. Some people find that in one situation they may act so differently compared with another situation that they feel almost as if they were two different people. Circle a number to show what percentage of the time this happens to you.

  0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

23. Some people sometimes find that in certain situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them (for example, sports, work, social situations, etc.). Circle a number to show what percentage of the time this happens to you.

  0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

24. Some people sometimes find that they cannot remember whether they have done something or have just thought about doing that thing (for example, not knowing whether they have mailed a letter or have just thought about mailing it). Circle a number to show what percentage of the time this happens to you.

  0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

25. Some people find evidence that they have done things that they do not remember doing. Circle a number to show what percentage of the time this happens to you.

  0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

26. Some people sometimes find writings, drawings, or notes among their belongings that they must have done but cannot remember doing. Circle a number to show what percentage of the time this happens to you.

  0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
27. Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things that they are doing. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

28. Some people sometimes feel as if they are looking at the world through a fog so that people and objects appear far away or unclear. Circle a number to show what percentage of the time this happens to you.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Appendix 6: Psychopathy Checklist-Revised Items

(Hare, 1991, 2003)

<table>
<thead>
<tr>
<th>Factor 1: Interpersonal &amp; Affective Traits</th>
<th>Factor 2: Behavioral Features</th>
<th>Non-loading Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glibness/Superficial Charm</td>
<td>Need for Stimulation/ Proneness to Boredom</td>
<td>Promiscuous</td>
</tr>
<tr>
<td>Grandiose Sense of Self Worth</td>
<td>Parasitic Lifestyle</td>
<td>Sexual Behavior</td>
</tr>
<tr>
<td>Pathological Lying</td>
<td>Poor Behavioral Controls</td>
<td>Many Short-term</td>
</tr>
<tr>
<td>Conning/Manipulative</td>
<td>Early Behavioral Problems</td>
<td>Marital</td>
</tr>
<tr>
<td>Lack of Remorse or Guilt</td>
<td>Lack of Realistic Long-term</td>
<td>Relationships</td>
</tr>
<tr>
<td>Shallow Affect</td>
<td>Goals</td>
<td>Criminal</td>
</tr>
<tr>
<td>Callous/Lack of Empathy</td>
<td>Impulsivity</td>
<td>Versatility</td>
</tr>
<tr>
<td>Failure to Accept Responsibility</td>
<td>Irresponsibility</td>
<td></td>
</tr>
<tr>
<td>for Own Actions</td>
<td>Juvenile Delinquency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Revocation of Conditional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Release</td>
<td></td>
</tr>
</tbody>
</table>

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Appendix 7: Participant Informed Consent

PARTICIPANT CONSENT FORM

Title: Autobiographical Memories in Incarcerated Men
UBC Ethics #: B99-0469
Investigators: Dr. John C. Yuille & Barry S. Cooper, MA, University of British Columbia.
Lab phone: 604-822-6130
Sponsoring Agency: Social Sciences and Humanities Research Council
(SSHRC)

Dear reader,

The Yuille Forensic Psychology Laboratory at the University of British Columbia (UBC) is requesting your voluntary participation in a research project concerning autobiographical memories. We wish to interview you about some of your past experiences. Specifically, we are interested in hearing about both violent and non-violent acts that you have experienced as a victim or have engaged in yourself.

If you agree to participate in our study, it will take approximately 5 hours of your time. You will be financially compensated with a $15 honorarium that will be directly deposited in your institutional account approximately 10 working days from your participation in the study. We believe that the information that you provide to us will help us better understand how offenders recall past experiences. This would add to our knowledge of how memory works under different situations (e.g., stress, trauma, happiness).

Involvement in our study will entail providing confidential audio-taped narratives regarding up to five different types of memories of your past experiences (e.g., your index offence, a positive experience, a traumatic experience). Specific questions may be asked in order to clarify any uncertainties. Additionally, you will be asked to fill out a number of self-report inventories pertaining mainly to personality attributes. The interviews will be conducted by trained research assistants with interviewing experience. You may ask clarifying questions at any point during the session and are free to withdraw at any point without penalty.

All information provided by you, and any records obtained to assist in assessing the accuracy of your description of the memories, will remain strictly confidential and will be used only for the purposes of this study. Additionally, only Dr. Yuille (UBC psychology professor) and the students under his supervision will have access to this information. All documents will be identified only by code number and kept in a locked filing cabinet in a locked room in our psychology laboratory at UBC. Participants will not be identified by name or by institutional ID in any reports of the completed study.

Your participation will in no way affect your sentence or the management of your case. You have the right to refuse to participate or withdraw from this study at any time without jeopardizing anything related to your sentence management. If you experience
any psychological difficulties as a result of your participation in this study please contact the psychology department at your institution.

If you wish to participate in our study please fill out the following information: I understand that my participation in this study is entirely voluntary and that I may refuse to participate or withdraw from the study at any time without penalty. By signing below, I give my full informed consent to participate in this study. This will include reporting up to five different types of autobiographical memories and responding to a number of self-report questionnaires pertaining mostly to personality characteristics. I consent to having my interview audio-taped.

Participant signature: ________________ Date: ________________

Print Name: ___________________________ FPS: ________________

In addition to the above, my participation in this study will include allowing a research assistant to review my correctional files in order to search for corroborating information for some of the memories that I provided. This research assistant will also search for information in my correctional files in order to score some inventories that relate mostly to personality characteristics. This research assistant will not be the one that conducts the interview.

Participant signature: ________________ Date: ________________

In addition to consenting to the information in the first box, I consent to being re-interviewed approximately one year from now.

Participant signature: ________________ Date: ________________

In addition to consenting to the information in the first box, I agree that a research assistant can contact some collateral sources (e.g., friends, family [NOT THE VICTIM(S)]) regarding some of the memories that I discuss. This will be done in order to assess the events that led to my memories from a third person's (e.g., eyewitness) perspective. The attached sheet will contain information to contact these collateral sources.

Participant signature: ________________ Date: ________________
Appendix 8: Limits to Confidentiality

As the other consent form indicates, your participation in this study will remain strictly confidential and will in no way influence anything related to your sentence management. However, as you are likely aware, there are clear limits to confidentiality in the correctional context. I (the interviewer) do not want to hear about anything related to possible breaches of institutional security. I do not want to hear about possible dangers to others (including children) or yourself. I do not want to hear about past crimes against children for which you or any others have not been convicted. I do not want to hear about any possible past crimes of a very serious nature (e.g., murder, sexual assault) for which you or any others have not been convicted.

Finally, I do not want to hear about any crimes that you are planning to do. I will do my best to stop you if I feel that you are about to discuss anything related to the above. However, if you do state anything related to the above, I am both legally and ethically obligated to break the confidential nature of this interview and report the information in question to the designated authorities.

I fully understand the limits to confidentiality.

Name ___________________________ FPS ___________________________ Date ___________________________
Appendix 9: The Big Five Inventory-44s

(John & Srivastava, 1999)

Instructions: For each of the 44 characteristics listed below, rate how descriptive each characteristic is of you. Consider this example:

*I see myself as someone who... "is obliging and agreeable".*

If you *strongly agree*, you would mark a 5 beside the statement. If you *strongly disagree*, you would mark a 1 beside the statement, and so on. Work quickly. Please do not skip any items.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

*I see myself as someone who...*

1. Is talkative
2. Tends to find fault with others
3. Does a thorough job
4. Has a wide range of interests
5. Is depressed, blue
6. Is original, comes up with new ideas
7. Is reserved
8. Is helpful and unselfish with others
9. Can be somewhat careless
10. Is relaxed, handles stress well
11. Is curious about many different things
12. Is full of energy
13. Starts quarrels with others
14. Is a reliable worker
15. Can be tense
16. Tends to be quiet
17. Values artistic, aesthetic, experiences
18. Tends to be disorganized
19. Is emotionally stable, not easily upset
20. Has an active imagination
21. Is opinionated
22. Is short-tempered
23. Is inventive
24. Is generally trusting
25. Tends to be lazy
26. Worries a lot
27. Is sometimes shy, inhibited
28. Has a forgiving nature
29. Does things efficiently
30. Can be moody
31. Is ingenious, a deep thinker
32. Generates a lot of enthusiasm
33. Can be cold and aloof
34. Makes plans and follows them through
35. Remains calm in tense situations
36. Likes to reflect, play with ideas
37. Is considerate and kind to almost everyone
38. Gets nervous easily
39. Is sophisticated in the arts, music and literature
40. Has an assertive personality
41. Likes to cooperate with others
42. Is easily distracted
21. Perseveres until the task is finished
22. Is sometimes rude to others
43. Is outgoing and sociable
44. Has few artistic interests
Appendix 10(a): Post-hoc Analyses for Hypothesis 3

Post-hoc Analyses for Hypothesis Three:

Age of Memories:

To explore possible age differences between the provided events, a repeated measures ANOVA was calculated on the reported ages of all of the memories. The test of within-subject effects was significant (Mauchly’s W[9] = .68 [Chi-square = 20.0], p < .025; Greenhouse-Geisser correction: F[3.37, 188.51] = 4.40, p < .005). As illustrated in Table 1, multiple pairwise comparisons (utilizing Least Significant Difference) indicated the SD experiences were significantly older in age than the other four types of experiences. The other memories did not significantly differ in terms of age. To provide a direct comparison, a repeated measures ANOVA compared only the ages of POS and SD experiences. The test of within-subject effects was significant (F[1, 138] = 35.57, p < .001). Thus, the SD experiences were significantly older in age than the POS experiences (see Table 2).

Table 1: Age Comparisons (Years) Between Events

<table>
<thead>
<tr>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.21 (9.74)</td>
<td>11.42 (8.97)</td>
<td>11.88 (8.72)</td>
<td>15.48 (13.34)</td>
<td>11.72 (9.07)</td>
</tr>
<tr>
<td>&lt; SD, p &lt; .003</td>
<td>&lt; SD, p &lt; .025</td>
<td>&lt; SD, p &lt; .025</td>
<td>&lt; SD, p &lt; .025</td>
<td>&lt; SD, p &lt; .025</td>
</tr>
</tbody>
</table>
Table 2: Comparisons of Variables Between POS and SD Events

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Subjectively Disturbing (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age</td>
<td>11.34 (10.35)</td>
<td>17.34 (13.24)</td>
</tr>
<tr>
<td></td>
<td><em>p &lt; .001</em></td>
<td></td>
</tr>
<tr>
<td>Mean # of Rehearsals</td>
<td>21.74 (89.78)</td>
<td>33.81 (147.23)</td>
</tr>
<tr>
<td>Mean # of General Experiences</td>
<td>984.89 (8733.49)</td>
<td>82.47 (313.97)</td>
</tr>
<tr>
<td>Mean # of Similar Experiences</td>
<td>22.70 (106.02)</td>
<td>28.87 (123.43)</td>
</tr>
</tbody>
</table>

*Memory for POS vs. SD: Co-Varying Age:*

As the SD experiences were significantly older in age than the POS experiences, repeated measures Analysis of Covariances (ANCOVAs) were calculated on the memory criterion variables to explore possible memory differences between the two experiences after controlling for the ages of the events. The tests of within-subject effects were not significant (overall memory: $F[1, 137] = 1.14, p > .20$; vividness: $F[1, 137] = 1.99, p > .10$; detail: $F[1, 137] = 1.26, p > .20$). Thus, when the ages of the memories were controlled, the SD memories were not recalled significantly better, in terms of self-reported overall memory, vividness, and detail than the POS memories.

Analyses on other variables that may have affected the analyses for hypothesis three are presented below (i.e., number of prior rehearsals, number of general and similar experiences).

*Number of Prior Rehearsals:*

To explore possible differences in the frequency of rehearsals by event type, a repeated measures ANOVA was calculated on the number of reported prior rehearsals for
all of the experiences (i.e., from open ended interview questions). The test of within-subject effects was not significant (Mauchly's W [9] = .27 [Chi-square = 70.55], p < .001; Greenhouse-Geisser correction: F[2.55, 142.64] = .69, p > .50). Table 3 shows there are no significant differences, in terms of the number of reported prior rehearsals, between all of the experiences.

Table 3: Number of Rehearsals by Type of Memory

<table>
<thead>
<tr>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.22 (134.18)</td>
<td>28.02 (132.05)</td>
<td>25.89 (77.49)</td>
<td>51.87 (185.26)</td>
<td>18.46 (39.48)</td>
</tr>
</tbody>
</table>

To provide a direct comparison, a repeated measures ANOVA compared the number of prior rehearsals for only the SD and POS experiences. The test of within-subject effects was not significant (F[1, 136] = .70, p > .40). Thus, the POS and SD experiences did not significantly differ in terms of the number of prior rehearsals (see Table 2).

**Number of Prior Experiences (General and Similar):**

Participants were asked to recall how many events they had experienced that met the definition of a POS experience, an act of IV, etc. (i.e., from open ended interview questions). Participants were asked to recall both the number of general events they experienced for each category (e.g., number of POS experiences) and the number of similar events they experienced for each category (e.g., number of birthday parties attended). To explore possible differences, in terms of the frequency of prior general experiences, a repeated measures ANOVA was calculated on the number of general experiences for all events. The test of within-subject effects was not significant.
(Mauchly’s W[9] = .01 [Chi-square = 224.29], p < .001; Greenhouse-Geisser correction: $F[1.64, 83.54] = 1.92, p > .10$). Thus, there were no significant differences, in terms of the prior number of general experiences, between the events. However, multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported experiencing significantly more general POS events than acts of RV and LM events (see Table 4).

To provide a direct comparison, a repeated measures ANOVA compared the prior number of general experiences for only the POS and SD events. The test of within-subject effects was not significant ($F[1, 130] = 1.42, p > .20$). Thus, the POS and SD events did not significantly differ in terms of the reported number of prior general experiences (see Table 2).

| Table 4: Number of Prior Experiences (General and Similar) By Event Type |
| Positive (POS) | Instrumental Violence (IV) | Reactive Violence (RV) | Subjectively Disturbing (SD) | Lack of Memory for Violence (LM) |
| Number of General Experiences | 205.80 (536.98) | 138.44 (702.41) | 98.42 (416.08) $< POS p < .05$ | 66.05 (193.96) $< POS p < .025$ |
| Number of Similar Experiences | 11.69 (25.37) | 109.78 (530.08) | 128.72 (457.26.) | 28.16 (107.61) $< POS p < .05$ | 3.70 (5.12) $< POS p < .05$ |

To examine possible differences, in terms of the frequency of reported prior similar experiences, a repeated measures ANOVA was calculated on the number of reported similar experiences for all of the provided events. The test of within-subject effects was not significant (Mauchly’s W[9] = .00 [Chi-square = 336.80], p < .001;
Greenhouse-Geisser correction: \( F[1.13, 35.13] = 1.43, p > .20 \). Thus, there were no significant differences, in terms of the reported number of similar prior experiences, for all events. However, multiple pairwise comparisons (utilizing Least Significant Difference) indicated participants reported experiencing significantly more similar POS events than LM events (see Table 4).

To provide a direct comparison, a repeated measures ANOVA compared the number of similar experienced events for only the POS and SD experiences. The test of within-subject effects was not significant (\( F[1, 104] = .15, p > .70 \)). Thus, the POS and SD experiences did not significantly differ in terms of the number of similar experienced events (see Table 2).
Appendix 10(b): Post-hoc Analyses for Hypothesis 7

Post-hoc Analyses for Hypothesis Seven:

Post-hoc analyses explored the phenomenological memory characteristics of events perceived from observer and field perspectives. For each event, participants were dichotomized based on their perspective taken (using both liberal and conservative definitions). Independent samples t-tests were then conducted on the MCQ memory criterion variables for each event as a function of the reported perspective taken. When both conservative and liberal definitions of observer perspectives were used, POS memories of events experienced from observer perspectives did not significantly differ in phenomenological memory characteristics from POS memories of events experienced from field perspectives (conservative: overall memory: $t[143] = .57, p > .50$; vividness: $t[143] = 1.43, p > .10$; detail: $t[143] = 1.10, p > .20$; liberal: overall memory: $t[143] = .90, p > .30$; vividness: $t[143] = 1.90, p > .05$; detail: $t[143] = .16, p > .50$; see Table 1).

Table 1: Comparisons of Memory Characteristics of POS Events Experienced From Field Versus Observer Perspectives

<table>
<thead>
<tr>
<th>Perspective</th>
<th>MCQ 33 (Overall Memory)</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer (conservative)</td>
<td>6.25 (.71) $p &gt; .50$</td>
<td>5.13 (1.36) $p &gt; .10$</td>
<td>5.25 (1.58) $p &gt; .20$</td>
</tr>
<tr>
<td>Field (conservative)</td>
<td>6.01 (1.18)</td>
<td>5.76 (1.21)</td>
<td>5.75 (1.22)</td>
</tr>
<tr>
<td>Observer (liberal)</td>
<td>6.23 (.92) $p &gt; .30$</td>
<td>5.27 (1.45) $p &gt; .05$</td>
<td>5.68 (1.43) $p &gt; .50$</td>
</tr>
<tr>
<td>Field (liberal)</td>
<td>5.99 (1.19)</td>
<td>5.81 (1.16)</td>
<td>5.73 (1.22)</td>
</tr>
</tbody>
</table>
When both conservative and liberal definitions were used, memories of acts of IV experienced from observer perspectives did not significantly differ in phenomenological memory characteristics from memories of acts of IV experienced from field perspectives (conservative: overall memory: $t[120] = .86, p > .30$; vividness: $t[120] = .20, p > .50$; detail: $t[120] = .81, p > .40$; liberal: overall memory: $t[120] = .11, p > .50$; vividness: $t[120] = 1.04, p > .20$; detail: $t[120] = .41, p > .50$; see Table 2). When both conservative and liberal definitions were used, memories of acts of RV experienced from observer perspectives did not significantly differ in phenomenological memory characteristics from memories of acts of RV experienced from field perspectives (conservative: overall memory: Levene’s test: $F = 5.40, p < .025$; $t[10.80] = .62, p > .50$; vividness: $t[135] = .59, p > .50$; detail: $t[135] = 1.33, p > .10$; liberal: overall memory: Levene’s test: $F = 8.52, p < .005$; $t[29.87] = 42., p > .50$; vividness: $t[135] = .27, p > .50$; detail: $t[135] = 1.22, p > .20$; see Table 3).

Table 2: Comparisons of Memory Characteristics of Acts of IV Experienced From Field Versus Observer Perspectives

<table>
<thead>
<tr>
<th>Perspective</th>
<th>MCQ 33 (Overall Memory)</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Observer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(conservative)</td>
<td>6.20 (1.23)</td>
<td>5.60 (1.51)</td>
<td>5.90 (1.60)</td>
</tr>
<tr>
<td>$p &gt; .30$</td>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .40$</td>
</tr>
<tr>
<td><strong>Field</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(conservative)</td>
<td>5.82 (1.32)</td>
<td>5.50 (1.49)</td>
<td>5.51 (1.43)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Observer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(liberal)</td>
<td>5.83 (1.50)</td>
<td>5.22 (1.62)</td>
<td>5.44 (1.70)</td>
</tr>
<tr>
<td>$p &gt; .50$</td>
<td></td>
<td>$p &gt; .20$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td><strong>Field</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(liberal)</td>
<td>5.86 (1.27)</td>
<td>5.58 (1.45)</td>
<td>5.57 (1.39)</td>
</tr>
</tbody>
</table>
When both conservative and liberal definitions were used, memories of SD events experienced from observer perspectives did not significantly differ in phenomenological memory characteristics from memories of SD events experienced from field perspectives (conservative: overall memory: \( t[141] = .87, p > .30 \); vividness: \( t[141] = .53, p > .50 \); detail: \( t[141] = .30, p > .50 \); liberal: overall memory: \( t[141] = 1.37, p > .10 \); vividness: \( t[141] = .70, p > .40 \); detail: \( t[141] = .84, p > .40 \); see Table 4). When both conservative and liberal definitions were used, memories of LM events experienced from observer perspectives did not significantly differ in phenomenological memory characteristics from memories of LM events experienced from field perspectives (conservative: overall memory: \( t[73] = 75., p > .40 \); vividness: \( t[73] = .38, p > .50 \); detail: \( t[72] = .06, p > .50 \); liberal: overall memory: \( t[73] = .63, p > .50 \); vividness: \( t[73] = .57, p > .50 \); detail: \( t[72] = .44, p > .50 \); see Table 5).

Table 3: Comparisons of Memory Characteristics of Acts of RV Experienced From Field Versus Observer Perspectives

<table>
<thead>
<tr>
<th>Perspective</th>
<th>MCQ 33 (Overall Memory)</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Observer</strong> (conservative)</td>
<td>5.00 (2.19)</td>
<td>4.82 (1.89)</td>
<td>4.64 (1.96)</td>
</tr>
<tr>
<td></td>
<td>( p &gt; .30 )</td>
<td>( p &gt; .50 )</td>
<td>( p &gt; .10 )</td>
</tr>
<tr>
<td><strong>Field</strong> (conservative)</td>
<td>5.42 (1.46)</td>
<td>5.06 (1.53)</td>
<td>5.25 (1.44)</td>
</tr>
<tr>
<td><strong>Observer</strong> (liberal)</td>
<td>5.24 (1.96)</td>
<td>5.12 (1.70)</td>
<td>4.88 (1.77)</td>
</tr>
<tr>
<td></td>
<td>( p &gt; .50 )</td>
<td>( p &gt; .50 )</td>
<td>( p &gt; .20 )</td>
</tr>
<tr>
<td><strong>Field</strong> (liberal)</td>
<td>5.41 (1.42)</td>
<td>5.03 (1.52)</td>
<td>5.28 (1.41)</td>
</tr>
</tbody>
</table>
Table 4: Comparisons of Memory Characteristics of SD Events

Experienced From Field Versus Observer Perspectives

<table>
<thead>
<tr>
<th>Perspective</th>
<th>MCQ 33 (Overall Memory)</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer (conservative)</td>
<td>5.55 (1.63)</td>
<td>5.23 (1.72)</td>
<td>5.32 (1.76)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .30$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Field (conservative)</td>
<td>5.81 (1.24)</td>
<td>5.40 (1.31)</td>
<td>5.42 (1.44)</td>
</tr>
<tr>
<td>Observer (liberal)</td>
<td>5.55 (1.44)</td>
<td>5.25 (1.46)</td>
<td>5.25 (1.50)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .10$</td>
<td>$p &gt; .40$</td>
<td>$p &gt; .40$</td>
</tr>
<tr>
<td>Field (liberal)</td>
<td>5.87 (1.23)</td>
<td>5.42 (1.33)</td>
<td>5.47 (1.48)</td>
</tr>
</tbody>
</table>

Table 5: Comparisons of Memory Characteristics of LM Events

Experienced From Field Versus Observer Perspectives

<table>
<thead>
<tr>
<th>Perspective</th>
<th>MCQ 33 (Overall Memory)</th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer (conservative)</td>
<td>3.89 (1.69)</td>
<td>3.44 (1.88)</td>
<td>3.11 (1.83)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .40$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Field (conservative)</td>
<td>3.41 (1.83)</td>
<td>3.21 (1.71)</td>
<td>3.15 (1.62)</td>
</tr>
<tr>
<td>Observer (liberal)</td>
<td>3.25 (1.62)</td>
<td>3.05 (1.64)</td>
<td>3.00 (1.63)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Field (liberal)</td>
<td>3.55 (1.87)</td>
<td>3.31 (1.76)</td>
<td>3.19 (1.65)</td>
</tr>
</tbody>
</table>
Appendix 10(c): Post-hoc Analyses for Hypothesis 11

Post-hoc Analyses for Hypothesis Eleven:

To examine the association between intrusion symptoms and memory in extreme IES scorers, bivariate Pearson two-tailed correlations were calculated on the intrusion subscale scores of the IES and the MCQ memory criterion variables for each event (except for the POS experience) for participants with extreme IES scores (see Table 1). None of the correlations were significant.

Table 1: Correlations Between Memory and PTSD

<table>
<thead>
<tr>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>$r = .52$</td>
<td>$r = .16$</td>
<td>$r = .27$</td>
</tr>
<tr>
<td>Memory (MCQ 33)</td>
<td>$p &gt; .05$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .05$</td>
</tr>
<tr>
<td>Vividness (MCQ 8)</td>
<td>$r = .47$</td>
<td>$r = .03$</td>
<td>$r = .19$</td>
</tr>
<tr>
<td>Detail (MCQ 9)</td>
<td>$p &gt; .05$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .40$</td>
</tr>
</tbody>
</table>

To examine the association between intrusion symptoms and memory in non-extreme IES scorers, the above analyses was repeated for participants who scored lower than 28 on the IES (see Table 2). None of the correlations were significant.
Table 2: Correlations Between Memory and PTSD Intrusion Symptoms for Participants with Non-extreme IES Scores

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
</table>
| Overall Memory (MCQ 33)| $r = .13$  
$p > .10$           | $r = .16$  
$p > .05$           | $r = .14$  
$p > .10$           | $r = .16$  
$p > .10$           |
| Vividness (MCQ 8)      | $r = .12$  
$p > .20$           | $r = .09$  
$p > .30$           | $r = .04$  
$p > .50$           | $r = .13$  
$p > .20$           |
| Detail (MCQ 9)         | $r = .11$  
$p > .20$           | $r = .09$  
$p > .30$           | $r = .10$  
$p > .20$           | $r = .21$  
$p > .05$           |
Appendix 10(d): Post-hoc Analyses for Hypothesis 12

Post-hoc Analyses for Hypothesis Twelve:

To examine the association between avoidance symptoms and memory in extreme IES scorers, bivariate Pearson two-tailed correlations were calculated on the avoidance subscale scores of the IES and the MCQ memory criterion variables for each event (except for the POS experience) for participants with extreme IES scores. As shown in Table 1, all correlations were null.

Table 1: Correlations Between Memory and IES Avoidance Symptoms for Participants with Extreme IES Scores

<table>
<thead>
<tr>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Memory (MCQ 33)</td>
<td>$r = -.17$</td>
<td>$r = .24$</td>
<td>$r = .03$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .40$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Vividness (MCQ 8)</td>
<td>$r = -.28$</td>
<td>$r = .17$</td>
<td>$r = .01$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .30$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Detail (MCQ 9)</td>
<td>$r = -.15$</td>
<td>$r = .20$</td>
<td>$r = -.03$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
</tbody>
</table>

To examine the association between avoidance symptoms and memory in non-extreme IES scorers, the above analyses was repeated for participants who scored lower than 28 on the IES for each event. None of the correlations were significant (see Table 2).
Table 2: Correlations Between Memory and PTSD Avoidance Symptoms for Participants with Non-extreme IES Scores

<table>
<thead>
<tr>
<th></th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Memory (MCQ 33)</td>
<td>$r = .14$</td>
<td>$r = .08$</td>
<td>$r = .08$</td>
<td>$r = .08$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .10$</td>
<td>$p &gt; .30$</td>
<td>$p &gt; .40$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Vividness (MCQ 8)</td>
<td>$r = .13$</td>
<td>$r = .06$</td>
<td>$r = -.00$</td>
<td>$r = .06$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .10$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>Detail (MCQ 9)</td>
<td>$r = .14$</td>
<td>$r = .04$</td>
<td>$r = .08$</td>
<td>$r = .14$</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .10$</td>
<td>$p &gt; .50$</td>
<td>$p &gt; .40$</td>
<td>$p &gt; .20$</td>
</tr>
</tbody>
</table>
Appendix 10(e): Post-hoc Analyses for Hypothesis 13

Post-hoc Analyses for Hypothesis Thirteen:

To examine the effects of extreme rehearsal on memory, participants were dichotomized into two groups based on their responses to MCQ item 38 (self-reported rehearsal) for each memory. Within each memory category, participants who reported a 6 or a 7 on MCQ item 38 were placed into the extreme rehearsal group and participants who reported a 1 or a 2 were placed into the little rehearsal group. Independent samples t-tests were performed on the MCQ memory criterion variables as a function of the two rehearsal groups for each type of event. Participants who reported extreme rehearsal for their POS experiences reported significantly better memory for such experiences in terms of detail ($t[97] = 2.38, p < .025$) and overall memory ($t[93.16] = 2.77, p < .01$), but not memory vividness ($t[97] = 1.83, p > .05$) in comparison to participants who reported little rehearsal (see Table 1).

Table 1: POS Memory Comparisons as a Function of Extreme Rehearsal

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Rehearsal</td>
<td>6.02 (.99)</td>
<td>6.09 (1.17)</td>
<td>6.40 (.82)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .05$</td>
<td>$p &lt; .025$</td>
<td>$p &lt; .01$</td>
</tr>
<tr>
<td>Little Rehearsal</td>
<td>5.59 (1.29)</td>
<td>5.53 (1.17)</td>
<td>5.80 (1.33)</td>
</tr>
</tbody>
</table>

Participants who reported extreme rehearsal for their act of IV reported significantly better memory for such experiences in terms of overall memory ($t[78] = 2.34, p < .025$), but not memory vividness ($t[78] = 1.97, p > .05$), or detail ($t[78] = 1.92, p > .05$), in comparison to participants who reported little rehearsal (see Table 2).
Participants who reported extreme rehearsal for their acts of RV reported significantly better memory for such experiences in terms of memory vividness ($t[81] = 2.77, p < .01$), detail ($t[69.02] = 3.18, p < .005$), and overall memory ($t[60.02] = 2.06, p < .05$) in comparison to participants who reported little rehearsal (see Table 3).

Table 3: RV Memory Comparisons as a Function of Extreme Rehearsal

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Rehearsal</td>
<td>6.00 (1.24)</td>
<td>6.00 (1.24)</td>
<td>6.35 (1.23)</td>
</tr>
<tr>
<td>($p &gt; .05$)</td>
<td>($p &gt; .05$)</td>
<td>($p &lt; .025$)</td>
<td></td>
</tr>
<tr>
<td>Little Rehearsal</td>
<td>5.35 (1.56)</td>
<td>5.38 (1.51)</td>
<td>5.63 (1.41)</td>
</tr>
</tbody>
</table>

Participants who reported extreme rehearsal for their SD experiences, reported significantly better memory for such experiences in terms of overall memory ($t[84] = 2.39, p < .025$), but not memory vividness ($t[84] = .89, p > .30$) or detail ($t[84] = 1.66, p > .05$) in comparison to participants who reported little rehearsal (see Table 4).

Table 4: SD Memory Comparisons as a Function of Extreme Rehearsal

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Rehearsal</td>
<td>5.62 (1.42)</td>
<td>5.92 (1.13)</td>
<td>5.81 (1.36)</td>
</tr>
<tr>
<td>($p &lt; .01$)</td>
<td>($p &lt; .005$)</td>
<td>($p &lt; .05$)</td>
<td></td>
</tr>
<tr>
<td>Little Rehearsal</td>
<td>4.54 (1.72)</td>
<td>4.93 (1.67)</td>
<td>5.09 (1.70)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Rehearsal</td>
<td>5.49 (1.47)</td>
<td>5.64 (1.48)</td>
<td>6.05 (1.28)</td>
</tr>
<tr>
<td>($p &gt; .30$)</td>
<td>($p &gt; .05$)</td>
<td>($p &lt; .025$)</td>
<td></td>
</tr>
<tr>
<td>Little Rehearsal</td>
<td>5.21 (1.40)</td>
<td>5.06 (1.70)</td>
<td>5.32 (1.52)</td>
</tr>
</tbody>
</table>
Participants who reported extreme rehearsal for their LM experiences did not report significantly better memory for such experiences in terms of memory vividness, \( (t[44] = .36, p > .50) \), detail \( (t[44] = .52, p > .50) \), or overall memory \( (t[44] = .75, p > .40) \) in comparison to participants who reported little rehearsal (see Table 5).

Table 5: LM Memory Comparisons as a Function of Extreme Rehearsal

<table>
<thead>
<tr>
<th></th>
<th>MCQ 8 (Vividness)</th>
<th>MCQ 9 (Detail)</th>
<th>MCQ 33 (Overall Memory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Rehearsal</td>
<td>2.83 (1.79)</td>
<td>3.03 (1.65)</td>
<td>3.50 (1.72)</td>
</tr>
<tr>
<td></td>
<td>( p &gt; .50 )</td>
<td>( p &gt; .50 )</td>
<td>( p &gt; .40 )</td>
</tr>
<tr>
<td>Little Rehearsal</td>
<td>3.04 (1.93)</td>
<td>2.75 (1.86)</td>
<td>3.07 (2.00)</td>
</tr>
</tbody>
</table>
Appendix 10(f): Post-hoc Analyses for Hypothesis 14

Post-hoc Analyses for Hypothesis Fourteen:

To explore the association between memory and trait dissociation in a different avenue than the analyses for hypothesis fourteen, participants were dichotomized based on their scores on PDEQ item 8 for each event (i.e., amnesia). This dichotomization was also completed for the analyses for hypotheses six, both conservatively and liberally. The amnesic and non-amnesic participants for each event were compared via independent samples t-tests in terms of mean differences in trait dissociation.

When both conservative and liberal definitions of amnesia were used, participants who claimed amnesia for their POS experiences did not have significantly higher levels of trait dissociation than non-amnesic participants (conservative: Levene’s test: $F = 22.83, p < .001; t[12.31] = 1.74, p > .10$; see Table 1; liberal: Levene’s test: $F = 15.22, p < .001; t[37.75] = 1.84, p > .05$; see Table 2).

Table 1: Trait Dissociation Comparisons as a Function of Reported Amnesia (Conservative) By Event Type

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amnesia</td>
<td>25.47 (26.88)</td>
<td>21.67 (22.80)</td>
<td>20.90 (20.73)</td>
<td>18.49 (12.27)</td>
<td>14.18 (9.87)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .10$</td>
<td>$p &gt; .05$</td>
<td>$p &lt; .05$</td>
<td>$p &lt; .05$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td>No Amnesia</td>
<td>12.42 (9.56)</td>
<td>11.56 (8.83)</td>
<td>11.53 (8.88)</td>
<td>12.53 (12.60)</td>
<td>13.15 (11.30)</td>
</tr>
</tbody>
</table>

In the conservative condition, participants who claimed amnesia for their acts of IV did not have significantly higher levels of trait dissociation than non-amnesic participants (Levene’s test: $F = 15.07, p < .001; t[19.03] = 1.91, p > .05$; see Table 1).
the liberal condition, amnesic participants reported significantly higher levels of trait
dissociation than non-amnesic participants ($t[118] = 2.05, p < .05$; see Table 2).

Table 2: Trait Dissociation Comparisons as a Function of
Reported Amnesia (Liberal) By Event Type

<table>
<thead>
<tr>
<th></th>
<th>Positive (POS)</th>
<th>Instrumental Violence (IV)</th>
<th>Reactive Violence (RV)</th>
<th>Subjectively Disturbing (SD)</th>
<th>Lack of Memory for Violence (LM)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amnesia</strong></td>
<td>18.41 (19.33)</td>
<td>16.44 (17.16)</td>
<td>18.13 (17.19)</td>
<td>15.36 (11.78)</td>
<td>13.85 (10.09)</td>
</tr>
<tr>
<td></td>
<td>$p &gt; .05$</td>
<td>$p &lt; .05$</td>
<td>$p &lt; .01$</td>
<td>$p &gt; .10$</td>
<td>$p &gt; .50$</td>
</tr>
<tr>
<td><strong>No Amnesia</strong></td>
<td>12.12 (9.18)</td>
<td>11.52 (9.18)</td>
<td>10.83 (8.28)</td>
<td>12.41 (13.22)</td>
<td>13.27 (12.20)</td>
</tr>
</tbody>
</table>

When both conservative and liberal definitions of amnesia were used, participants
who claimed amnesia for their acts of RV had significantly higher levels of trait
dissociation than non-amnesic participants (conservative: Levene’s test: $F = 13.50, p <
.001$; $t[26.03] = 2.22, p < .05$; see Table 1; liberal: Levene’s test: $F = 10.12, p < .005$;
$t[54.43] = 2.70, p < .01$; see Table 2).

In the conservative condition, participants who claimed amnesia for their SD
experiences had significantly higher levels of trait dissociation than non-amnesic
participants ($t[139] = 2.16, p < .05$; see Table 1). In the liberal condition, amnesic
participants did not have significantly higher levels of trait dissociation than non-amnesic
participants ($t[139] = 1.36, p > .10$; see Table 2).

In terms of the LM experiences, in both the conservative and liberal conditions,
amnesic participants did not have significantly higher levels of trait dissociation than
non-amnesic participants (conservative: $t[70] = .41, p > .50$; see Table 1; liberal: $t[70] =
.19, p > .50$; see Table 2).