

2021

# Invariant Structural Features of Retrograde Amnesia Affected Memory

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# Walden University

College of Social and Behavioral Sciences

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Daniel K. Burch, Sr.

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Walden University  
July 2021

Abstract

Invariant Structural Features of Retrograde Amnesia Affected Memory

by

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MA, Villanova University, 2007

MA, Lesley University, 1987

BS, University of Maryland, 1982

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

July 2021

## Abstract

Traumatized individuals may use one or several emotional defensive strategies to cope with their experience; one method is via autobiographical amnesia which may influence the efficacy of amnesiac patients' psychological adjustment during a sensitive period. Little research has addressed the potential of how emotionally invariant structural features may impact the reconsolidation of autobiographical memory, which in turn may support patients to complete successfully psychotherapeutic treatment or intervention. This phenomenological study addressed how lived experiences (i.e., invariant emotional and behavioral conscious states) may play into patients' transformational memory of some or all of the traumatizing event details. To answer these questions, this study implemented a qualitative phenomenological design formatted around researcher-generated interview protocols and used memory reconsolidation theory, multiple trace theory, and transactional theory of stress and coping to provide context to this study's findings. A nationwide call for study participants produced a random selection of 15 eligible clinician or patient participants. The Modified Stevick-Colaizzi-Keen phenomenological analysis method was used. The study essence statement revealed three themes combining emotion and cognitive processes, and behaviors prior to trauma memory recall. Not all of the clinician participants became immediately aware of the patient's recall during treatment. Positive social change implications may include reduced therapeutic duration, accurate and expedient identification of the return of patients' autobiographical memories, and lowered risk of sudden or unexpected patient psychological or emotional trauma realization.

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## Chapter 1: Introduction

What is reality? What inscrutability of experience lies beyond the detectable reach of an individual's senses? At the root of existence, the mind and matter coalesce and thoughts shape reality. Individuals' experiences are unique to them. Therefore, every second of people's lives creates an infinite number of horizons. Some horizons are benevolent and fruitful; others are full of malice, trauma, and want. Unique experiences form individual identities, and thus individuals must open their eyes. People may think they know how the world works and how to live in it, but one must ask if this seen, heard, and felt corporeal and material world is all that there is.

The aim of this study was to provide clinicians with a better understanding of possible clinical invariant structural features of individuals' experiences. I define *structural features* as attributes of the individual that differentiate them from others. Further, these features contribute a sense of familiarity when the individual encounters people, objects, or events that they have previously encountered. In terms of trauma, the conditions of an experience may include remembering what happened just before an event that incurs traumatic amnesia. Clinicians would do well, therefore, to develop understandings of how patient structural features factor into their memories of trauma; doctors who comprehend the interplay of these features, and how a patient displays them physiologically, behaviorally, and emotionally while undergoing therapeutic treatment, may be able to reduce patient stress in re-experiencing traumatic memories and thereby reduce the duration of the treatment. A further advantage of understanding patient structural features is that it may lead to saving resources for both the patient and clinician. To date, research has focused on physiological indicators at the moment of or after the

patient's memory-return (Goldinger & Papesh, 2012; Harrison et al., 2012). I investigated these indicators in patients' memories before the trauma.

Studying behavioral or emotional features, along with the etiology of potential invariant structural features of autobiographical memory-return as a result of psychotherapy, may furthermore provide clinicians with increased comprehension of how behavioral or emotional intensity forms or changes, even before the patient exhibits any change in memory performance. An enhanced clinical perspective regarding the structural features of an individual's experience may reduce the overall duration of patient therapy time, for the therapist may recognize the features indicative of memory-return. Such knowledge of structural features may also reduce patient apprehension and excessive re-experience of the traumatic event inhibiting autobiographic memory.

This chapter commences by briefly describing the research problem and stating the study's purpose and research questions, followed by a synopsis of the project's theoretical and conceptual foundations. Next, I discuss the nature of the study and the rationale for a qualitative phenomenological design. To provide a clear understanding of the project's concepts, theories, and methodologies, the chapter defines important terms, and addresses assumptions, scope, and the delimitations and limitations unique to this study. Finally, the chapter offers a brief discussion of the project's significance to clinical psychology and psychologists, and its implications for social change.

### **Background**

The Study Significance and Implications for Social Change portions of this chapter offer the rationale for this study's importance, while Chapter 2 offers a full literature review. Nevertheless, it is useful here to provide a summary of the study's

research literature to act as background for how this subject rose to be the focus of the study.

The research may be subdivided into four categories. The first subcategory is foundational and recent research that relates to the concepts and methodologies of phenomenology and neurophenomenology. Exploring how to understand experiences and consciousness from the phenomenological and neurophenomenological perspectives and methodologies is still a developing science (Quinette et al., 2006), while this study employs these methodologies. Second is the subcategory associated with emotion, memory, and amnesia, as well as the neurophysiological collateral between these factors. Third is research literature related to physiological changes and emotion, and fourth is research pertaining to remembering and other memory processes. In combination, these four subcategories add up to a rich literature about the phenomena of remembering traumatic events, but important gaps exist.

To date, research has focused on physiological indicators—i.e., eye dilation or blink changes, galvanic response, cardiac rhythm changes, brain temperature change, etc.—that occur at the moment when the patient’s memory returns (Goldinger & Papesh, 2012; Harrison et al., 2006; Holmes et al., 2005; Laeng et al., 2012; Zoladz & Diamond, 2013). Contrarily, few psychology and health service providers are knowledgeable about the lived experience of survivors of traumatizing incidents (Dallam, 2010; Kondora, 1995). For example, Sharf et al. (2010) reviewed 11 studies to create a metanalytic review that examined the in-session attentiveness of the clinician toward their client’s changing physiological, emotional, and behavioral state, and that took into consideration session setting and length. Their results indicated that clinicians’ inattentiveness to a

client's physiological, emotional, and behavioral changes may subsequently influence the client's premature withdrawal from therapy; this same inattention may also prompt sessions to continue for unnecessarily prolonged periods.

This gap in the literature was repeatedly evident in clinical research using phenomenology or neurophenomenology (Bockelman et al., 2013), suggesting that some psychologists and health service providers are uninformed about the important role that survivors' experiences play in their process of recovering from traumatizing incidents (Dallam, 2010; Kondora, 1995). This methodological and conceptual gap, noted by Thompson et al. (2005), was the main impetus for this study's means for collecting, categorizing, and analyzing first-person data.

Strle (2013) has reported that "standard science" (i.e., the status quo) practical approach to treating trauma memory, and experiential phenomenology have yet to achieve a strict methodology that is empirical and open to intersubjective verification for studying consciousness. Similarly, Van de Laar and de Regt (2008) indicated that a strategy to explore the structure of experience is lacking. They argue that researchers need to find the phenomenon invariants of the experience through the previously noted application of strict phenomenological methods, thereby associating the invariants of the experience with neurological data; practical representative literature is scarce (Van de Laar, 2008). The principal goal of phenomenology is to understand how human consciousness interprets phenomena (Davidsen, 2013). Transcendental phenomenology and neurophenomenology both employ a practical methodology as a solution to the difficult problem of defining consciousness and experiences. I employed a similar



approach in this study to explore the invariant structures and features of one specific variant: the remembering of a traumatic incident.

Ruben et al. (2016) proposed that much of the inconsistency in the scholarship on recalling traumatic events arises out of the disproportional representation of military personnel or veterans with combat experience. This limitation is noteworthy, and yet the intended sample for this study excluded active duty military veterans, due only to their vulnerable population status and out of concern for the possible adverse effects of reliving trauma when exploring individual experiences. A vulnerable patient or population is an individual or group of people who are or may become unable to take care of or protect themselves against significant harm, abuse, or exploitation (Miracle, 2010; Shivayogi, 2013).

This study also investigated specific events or patterns of exposure, and therefore the findings may not be generalized to the general population. The main objective of the study, however, was the invariant features preceding recall of traumatic experiences. This study was furthermore exploratory and did not intend to assess any differentiation between therapeutic or psychotherapeutic models or treatments.

This phenomenological study did not explore the phenomenology of the traumatic event itself, even while Mølbak (2012) emphasized that much of the literature neglects to indicate that the event is what transforms the traumatized victim: to understand what the individual has experienced, we need to understand “undergoing the experience” (p. 196). Nevertheless, this study did not veer from its ethical concerns for the participants who have previously experienced a traumatizing event. I tailored the interview protocol specifically to explore the participants’ experiences *before* the traumatic events per se,

and focused on their recollections of activities and reactions prior to the trauma they underwent, endured, and survived.

Conversely, every experience is unique to the perspective of the individual, and researchers should distinguish between all events as they are “never contained within the a priori structure of a subject who has an experience” (Mølbak, 2012, p. 213). The essence of the traumatic event remains with the subject long after the event has passed, and it psychologically affects the subject in the here-and-now and cannot be fully phenomenologically captured otherwise. In other words, the past still affects the subject’s present perception of past events, and this study sought to address the intrusion of the traumatic recall on patients’ memories of what happened before the trauma occurred.

An additional research gap arises out of the emphasis on oral narratives when exploring aspects of the experience. As individualized perceptions of ‘the other’ or the world form the basis of experience, the events that traumatize particular people could disclose nonverbal attributes that become embodied and an aspect of intersubjectivity. In addition, these attributes may possibly spur a variety or cascade of defensive strategies. Ritchie et al. (2006) and Frazier et al. (2009) argue that research and clinical practice require an understanding of the self and the past for making sense of the traumatic events. Such understanding, moreover, develops positive mental activities, like resilience, that may well benefit the individual by dissipating the negative experience more expediently. In a similar vein, Byrne et al. (2007) indicated that there was currently no clear consensus regarding the representation of the self in remembering past experiences. Van Giezen et al. (2005) added that because the details of trauma event(s) are often only indirectly accessible, phenomenology may be an effective treatment due to the fact that patients

recall details and facts only gradually. Van Giezen et al. (2005) contend that the literature is lacking in terms of consistent findings on memory for events that arouse emotion. To understand their lived experiences, the researcher or therapist needs to experience the study participants' verbal and nonverbal communication with the researcher.

Additional research may lead to understanding whether increases in arousal of emotions preceding recovery of amnesiac memory accompanies instances of decreases in excessive traumatized behavior or activity (Hatfield et al., 2014). This research was necessary, as each body part has a specific contribution to the expression of a particular emotion (Dael et al., 2012; Visch et al., 2014). While much research focuses on subject-object dualism, akin to *noetic* and *noematic* aspects of phenomenology, scholars now need to focus on the “how” and “what” of the experience correlation (Langdrige, 2008). Langdrige (2008) also contended that most qualitative researchers recognize the need for reflexivity, but do not understand epoché (i.e., the process of looking at things as they stand, via aspects that describe and define them), and therefore do not understand phenomenological methodology. Critics of the approach perceive phenomenology as a naïve and archaic vision, fit only for disconnected and indifferent researchers (Langdrige, 2008). Therefore, in addition to applying specific phenomenological methods, and in order to understand the lived experience of the patient, therapists should “interrogate of their [patient] data” (p. 1131) by exploring their lifeworld in temporal, spatial, intersubjective, and embodied ways.

According to Braddley et al. (2012), little of the phenomenological literature about understanding experiences has focused on correlating physiological changes (skin conduction, heartrate deceleration, and pupil dilation, for example) with associated

neurophysiological functions (i.e., recall and reconsolidation). These physiological features are useful cues in activating neural and cognitive networks associated with the emotional recall of traumatic experiences. Braddley et al. (2012) suggested that various neurophysiological features during reflective recall are critical for determining whether emotion facilitates or inhibits the perception of an experience, and that modulation by emotion could reflect the particular structure or features of the experience. Similarly, McNally et al. (2005) contended that further qualitative research was necessary to explore the presence and reporting of disengaged attention for trauma-related focal cues. Knowing these elements and how they are embedded in patient experiences may aid in determining how subsequent recall of these cues becomes impaired.

### **Problem Statement**

According to the National Center for Biotechnology Information, between 2000 and 2007, five in 100,000 people in the United States suffered from some form of amnesia each year (Owen et al., 2007). Scott-Tilley et al. (2010) and Astur et al. (2006) posited that exposure to traumatic events reached almost 90% in the general population in 2010. Conversely, Keret et al. (2016) determined that the incidence of amnesia is growing, reporting that 20 in 100,000 people in the United States suffer from some form of amnesia each year. In their research on rumination and mindfulness, Im and Follette (2016) indicated that 56% to 90% of individuals in the United States experience at least one traumatic event in their lifetimes. Research shows that even one direct or indirect exposure to a traumatizing incident may contribute to developing psychological disorders (Galatzer-Levy, et al., 2013).

The problem that this study sought to address was that clinicians who treat individuals with trauma-related amnesia may not be aware of possible invariant features that could support patients to regain their autobiographical memory. Not recognizing the benefits of these invariant features could bear deleterious effects, including prolonging treatment, missing essential information and thereby delaying therapy focused on this sensitive period, and overtaxing resources that could be used more effectively elsewhere (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004). Although the study focuses on trauma patients and clinicians who treated them, future studies may expand the scope to develop understanding for broader communities.

Invariant structural features to individuals' autobiographical memory-return may be present after psychotherapeutic intervention for specific psychological or emotional traumatic events (Grilli & Glisky, 2013; Nielsen et al., 2009). Clinicians should further understand that amnesia patients not only experience the self, objects, and the world in meaningful ways, but also that these experiences often comprise emotions or sensations. Emotionally excessive behaviors or other activities influence the patients' physical and social world (Izard, 2011). Professional mental care providers have long been aware of physiological signs associated with particular emotional changes (Harrison et al., 2006), as well as several physiological and neurochemical features and structures indicative of memory-return (Sinnott et al., 2007). The research, however, has not addressed the potential that emotional invariant structures and features may indicate autobiographical memory reconsolidation without psychotherapeutic treatment (Campbell et al., 2011; Holmes et al., 2005; Zoladz & Diamond, 2013).

Understanding a new means to effectively decrease the duration of therapy, perhaps by learning if these indicators are related to the patient wellbeing, may save time and resources (Baker, 2009; Levant et al., 2006). Identifying these features and structures may also lead to a more prompt retrieval of the patient's retrograde memory (pretraumatic event memory). If the patient was unprepared to address the recalled memory at the time of its retrieval, it may become enduring, unalterable, and/or harmful, and contribute to the prevention of full recovery (Finn & Roediger, 2011; Gillespie et al., 2002).

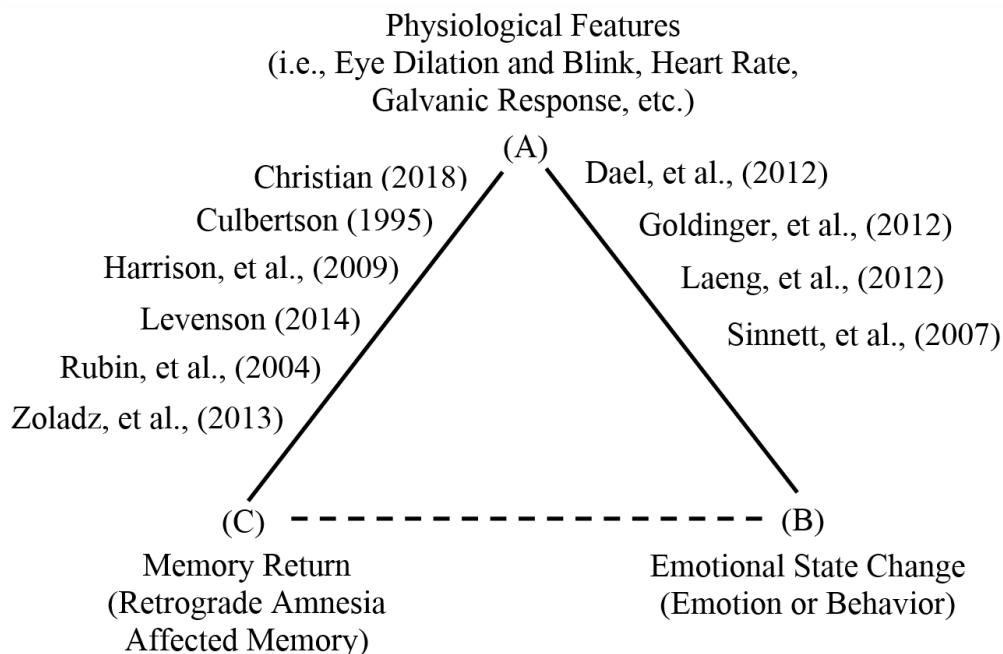
### **Purpose Statement**

The purpose of this qualitative phenomenological study was to improve clinicians' understanding of the role played by possible invariant structures and features of experiences that precede the return of autobiographical memory in individuals with trauma-related amnesia in psychological treatment. To do so, one must also understand the patient's invariant emotional states and lived experiences. To date, research has preferentially focused on physiological indicators (i.e., eye dilation or blink changes, galvanic response, cardiac rhythm changes, brain temperature change, etc.) at the moment that the patient's memory returns (Goldinger & Papesh, 2012; Harrison et al., 2006; Holmes et al., 2005; Laeng et al., 2012; Zoladz & Diamond, 2013). According to Smith and Kirby (2012), there was a need for research that places emphases on how involuntary reaction to trauma (i.e., emotion) influences autonomic and sympathetic behavioral responses, including adaptive outcomes such as memory loss and reconstitution. Finan et al. (2012) posit that researchers have also ignored emotion relative to the role of physiological indicators. Figure 1 displays some of the exceptions,

for it would be prohibitive to discuss all literature that indicates links between emotional adaptation as a result of memory recollections, or physiological adaptation, concurrent with affect changes. For example, Goldinger and Papesh (2012), Harrison et al. (2006), Laeng et al., (2012), and Sinnott et al. (2007) have studied emotional and physiological adaptation linked with affect changes, specifically, patient pupil dilation, blink frequency, and visual dominance to validate physiological responses as a result of adapting to emotion. Conversely, Dael et al., (2012) demonstrated that body action and posture movements occur in conjunction with specific responses when an individual was adapting to or developing emotion. Levenson (2014) demonstrated how emotion may impact the autonomic nervous system and other physiological systems, while Zoladz and Diamond (2013) investigated behavioral and biological markers of PTSD in order to clarify conflicting literature concerning memory recovery and adaptive physiological responses. Researchers have also empirically studied galvanic adaptation (Christian, 2018; Culbertson, 1995; Rubin et al., 2004), or perspiration stress (Schauer & Elbert, 2010), as a result of adapting to changing emotion.

### Figure 1

*Association between the Physiological Features and Memory Return or Emotional States in the Literature*



*Note.* Vertices A, B, and C indicate key themes or variants of this dissertation. Leg A-B of the figure represents the literature associated with physiological features and emotional states. Leg A-C of the figure represents the literature associated with physiological features and memory return. The last leg (C-B) illustrates the logical (inter)connective rationale and theme of this dissertation, such that if B was indicated by A and if C was indicated by A, then C may be indicated by B.

To address this gap, this qualitative phenomenological study explored emotional indicators (i.e., invariant states of fear, anger, regret, horror, helplessness, shame, guilt, or anxiety) and the etiology of potential invariant structural features of autobiographical memory recurrence as an outcome of therapeutic interventions. I hope to develop an understanding of how patients' changing emotional states possibly indicate traumatic



memory reconsolidation. This research includes fathoming the patient's own self-understanding and the meaning of their emotional state, now that previous defense strategies no longer serve their purpose and therefore diminish, change, or cease.

### **Research Questions**

I investigated the phenomenon of what precedes traumatic memory-return following psychotherapy. The research questions were open-ended so that participants could articulate their genuine lived experience. The research questions guiding this study were:

Research Question 1 (RQ1): What experiences of living preceded traumatic memory return following psychotherapy as an adult with autobiographical amnesia?

Research Question 2 (RQ2): What were the experiences of living as a clinician or observer of an adult that proceed traumatic memory-return following psychotherapy of an adult patient with autobiographical amnesia?

This study documented the experience of adults living with recovered traumatic memory, and the impact of transformation on the lives of the participants. What is the lived experience of the unfolding experiential process for amnesia patients leading to the memory of details (partial or complete) of a past traumatic event? What is their description and lived experience of their *recovery* from retrograde amnesia, i.e., amnesia due to a previous emotionally traumatizing event or incident?

### **Theoretical Foundation**

The theoretical foundations for this dissertation have principal origins in the processes of remembering and the source of responses to trauma. This section states three major theoretical propositions and major hypotheses, with more detailed explanations in

Chapter 2. It also offers an explanation for how these foundational theories are related to this proposed phenomenological study and its research questions. Figure 1's transitive law details these theoretical foundations, albeit not inclusively, where vertex A, "physiological feature change," was indicative to vertex C, "memory-return."

Memory reconsolidation theory (Barrett & Sherry, 2012; Breedlove & Watson, 2013; Carlson, 2010) proposes that the process of returning memory connects to a steady, long-term condition following exposure to a perceived stressful event. This stressful, even traumatic, event may affect the traumatized individual, who may be unable or unwilling to cope due to the event's severity, successive exposures, and their individual resilience. The individual may resort to using alternative emotional defensive strategies that are comorbid with the incidence of traumatic amnesia. Some persons who have reconsolidated or reintegrated traumatic memories, regardless of alterations, may relive them as flashbacks. These are posttraumatic stress disorder patients (Carleton, 2016; McNally, 2003; Wichert et al., 2013). Others, refusing or unable to cope with such memories, may resort to repressing them (Loftus, 1993; Van der Kolk & Fisler, 1995) or to developing appreciable levels of amnesia by way of dissociative personalities (Benight & Bandura, 2004; Elbert & Schauer, 2002; Iglesias & Iglesias, 2009). Reconsolidation theory of adaptive memories are a crucial element for understanding the grounded theoretical foundations of this dissertation's research questions, as are the origins and interpretation of multiple memory traces.

Multiple trace theory (MTT; Nadel et al., 2007) suggests that some memories that are reactivated become reinforced, while others are allowed to fade or be forgotten. Whenever an individual retrieves a memory, for example of a traumatic event or incident,

they create a new memory trace. Retrieval of a memory marker leads to additional or replicated encoding, which in turn both strengthens and changes that trace, making the details of the event more accessible, either through an updating of the original trace or by forming a new, alternate memory trace (Bartlett, 2003; Nadel et al., 2007). Regardless of the healthy or detrimental characteristics of the adapted traumatic memories, whether or how an individual attempts to address the trauma is often a matter of their coping skills and personal resilience; their ability to change the threatening environment or remove themselves from the threat; and their available support and wellness systems.

The transactional theory of stress and coping (Lazarus, 1966; Lazarus & Folkman, 1984) focuses on the collaborative process between an individual, their support system (e.g., friends, family, community), and their social or environmental setting during a stressful or traumatic experience (Carlson & Dalenberg, 2000; Lazarus, 1966; Lazarus & Folkman, 1984; Lazarus & Folkman, 1987). Part of this social support system may include the availability and motivation to participate in a psychotherapy regimen. The theory outlines the stress response process and coping behaviors, the individual's strategies for coping with difficult or traumatic settings, and potential biopsychosocial reactions. In doing so, the individual assesses a traumatic event or environment from several perspectives or contextual representations of the world. The individual evaluates their wellbeing relative to the resources they need to overcome their trauma (Carlson et al., 2016; Epel et al., 1998; Lazarus & Folkman, 1987; King & Beehr, 2017). This theory also focuses on how individuals instigate specific coping or defense strategies based on their transactional appraisals, including seeking mental health services. In addition to

these principal theoretical foundations, the researcher also employs several fundamental concepts for this phenomenological study and its research questions.

### **Conceptual Foundation**

The principal origins of these conceptual foundations lie in externalized physiological reactions (see Figure 1). The following paragraphs identify and define the major concepts derived from the literature review, with more detailed analysis to follow in Chapter 2. The section offered an explanation for how these foundational concepts relate to the proposed phenomenological study, the research questions, and the researcher-generated instrument and data analysis. Figure 1's transitive law details these conceptual foundations, where vertex B, "emotional state change," was indicative to vertex C, "memory-return."

The affect-regulation hypothesis (Williams, 1969) states that the conflicted or traumatized individual forms evasion or avoidance schemes to regulate their negative emotions. The affect regulation partly originates when memory retrieval begins to elicit undesired or emotionally unfathomable event-specific details (Izard, 2009; Williams et al., 2007). The individual bridges the search for understanding emotional conflicts and seeks balance at a generic event level, so as to regulate exposure to aversive details and emotions (Bunnell & Greenhoot, 2012; Conway & Pleydell-Pearce, 2000; Finn & Roediger, 2011). The decrease of a deleterious affect then buttresses the broad remedy of this stratagem for memory searches. While "wearing one's emotions on one's sleeve" describes some individuals' ability to demonstrate their feelings externally (Spears, 2005), the facial feedback hypothesis posits how the human face can relate what the

individual was feeling, perhaps as a consequence of re-experiencing or remembering a trauma.

The facial feedback hypothesis (Darwin, 1872) states that an individual's facial movement can broadcast their emotional experiences. The unrestricted conscious physical expression of an emotional state intensifies it, while attempts to repress all outward emotional signals can diminish the individual's emotions (Darwin, 1872). James (1950) built on Darwin's premise that awareness of one's outward being itself becomes an emotional reflection of the self (whole), and that an individual's facial expressions affect not only the others in the environment but also the self, via external conscious or internal subconscious feedback (Hazem et al., 2017; Peters & Kashima, 2015; Veenstra et al., 2016). Using the facial feedback hypothesis permits an attending therapist to interpret and monitor emotional changes in the patient during a therapy. This therapeutic strategy becomes crucial when treating individuals who have survived traumatic experiences and unconsciously suppressed their affect related to the incident.

The trauma hypothesis (Williams, 1969) suggests that exposure to a traumatic incident bears critical influence on the development of overgeneralized autobiographical memory for most trauma victims (Moore & Zoellner, 2007). Developing overgeneralization as a functional reaction when the individual first encounters trauma (also known as primary exposure), was a means to circumvent uncomfortable or distressing emotions by discontinuing autobiographical memory retrieval, before recall or reconsolidation of a particular event can be retrieved.

The above theoretical and conceptual frameworks relate to the study through their various perspectives on how individuals manifest a defense cascade as they struggle to

cope with what they have experienced. Whether their perceived and experienced world truly lacks the necessary resources, individuals tend to overgeneralize their personal responsibility for their experiences. The phenomenological methodology and research questions address the reversibility of the patient's escalation of strategies for coping, i.e., the defense cascade, via completing a course of therapy and emergence of representative invariant features related to the cessation of mental illness symptomology.

The aforementioned concepts indicate that as patients become or maintain their inability to cope, their progressive use of strategies for coping (defense cascade) continued, at least until an effective strategy for coping was determined and implemented. One such strategy may be the use of therapy. During therapy, the clinician may ascertain the patient's readiness to deal with the catalyzing event by observing for the aforementioned invariant features (Contrada & Baum, 2011). If the clinician determines that the patients reconsolidated their traumatic memory in a timely manner, and promotes an effective psychological adjustment of amnesiac patients during the "sensitive period" (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004), then these patients' memories of traumatic events may be influenced by strengthened traumatic memory extinction.

The theories and concepts collectively have too weakly-linked associations, but with the transitive law, they avoid an associative fallacy. The theoretical foundations contribute to the transitive law cited in Figure 1, where vertex A (physiological feature change) was indicative to vertex C (memory-return). Conversely, the conceptual foundations contribute to the transitive law cited in Figure 1, where vertex B (emotional state change) was indicative to vertex C (memory-return).

### Nature of the Study

This qualitative phenomenological study used a semistructured interview process to investigate the lived experiences of the patient and therapist, the latter as real-time observer, for *phaino*, or to bring to light the moment (Moustakas, 1994), preceding traumatic memory recovery. This qualitative research was consistent with the core characteristics that define this study. The study protocol inquires into the interviewer's and participant's lived experiences, presents openness to tacit information, explores deep introspections culminating in insight, and provides project explication via analysis of the gathered data; in doing so, this study provided a creative synthesis by using phenomenological reduction and eidetic analysis.

The natural setting for collecting data was more conducive to a relaxed atmosphere than a laboratory, allowing the researcher to conduct phenomenological interviews and observations related to the research questions. The phenomenology study begins with the use of *epoché*, or self-examination, and disclosure of the researcher's own experience and feelings (Creswell, 2013; Langdrige, 2008; Mishara, 1990; Moustakas, 1994; Patton, 2015) to describe his and the study participants' concept of self, relation to the other, experiences (Gruba-McAllister, 2003), and invariant structural features at or just before remembering traumatic incidents. Transcendental-phenomenological reduction follows the epoché (Langdrige, 2008; Moustakas, 1994), in which the interviewer and participant and interviewer discover the essence of the phenomenon under research through extensive use of intentional interviewing techniques (Ivey, 2014), and abstract or apodictic reduction to the *living present* (Mishara, 1990). Finally, the study used "imaginative variation" to deduce the conceptual and fundamental

essence of the reported experiences (Moustakas, 1994). The interview setting remained the same therapeutic environment and not a laboratory (Creswell, 2014).

### **Definition of Terms**

The following definitions clarified key concepts or constructs of the study. These terms explain the phenomenological processes of this dissertation, and they appeared throughout this study in order to add conciseness and specificity. To understand many of these terms, one must also be aware of the context in which this study fathoms “memory.” The section below begins by defining memory, therefore, and then proceeds alphabetically through the other essential phrases.

*Memory:* there are numerous aspects of memory. These include the typological, physiological, and neurological processes and dynamics involved in memory operations, and such associated processes as learning, amnesia, disease, and injury. The professional and cultural perspective of the practitioner (i.e., medical doctor, psychologist, psychiatrist, lawyer, or cleric) also impacts how they define memory for their profession. What follow are qualifications of these terms for the context of this study.

*Amnesia:* a particular cognitive deficiency in which long-term memory is selectively impaired (Stirling & Elliott, 2008). Global impairments of memory are further differentiated as anterograde or retrograde. For the purposes of this study, the primary form of amnesia under investigation is that caused by the living experience of traumatic events, i.e., traumatic amnesia.

*Anterograde amnesia:* a memory deficient in attaining or forming new information about an experience since the event (Salmon & Squire, 2009; Stirling &



Elliott, 2008), or a memory that initiates a coping strategy which produces symptoms comorbid with amnesia (Benight, 2012; Brewin & Andrews, 1998).

*Anxiety*: the anticipation of future threats to the self (American Psychiatric Association, 2013). For example, when self- and emotional-regulation fail, anxiety often appraises an outcome related to impending threat (Ehlers & Clark, 2000). Anxiety expresses itself via physiological (fatigue, restlessness, sweating, nausea, palpitations, trembling), behavioral (hypervigilance, irritability), and cognitive (unwanted thoughts, inattentiveness) responses to unrealistic and unfounded distressing or traumatic beliefs or future dangers.

*Autobiographical memory*: according to Wheeler and McMillan (2001), autobiographical memory is a psychological paradigm: the knowledge and reminiscence about oneself; Sternberg and Sternberg (2012) define it as a memoir, or a memory of an individual's past.

*Autonoetic consciousness*: an underlying ability to mentally experience episodic events in subjective time (Merleau-Ponty, 1962).

*Body memory*: the unconscious, eccentric dispositions of the body. Body memory exists beyond consciousness, in the form of subconscious psychic or automatic brain processes. Fuchs (2012) viewed it as the sum of natural bodily dispositions which implicitly define the individual's affiliation to the world and other people. It, therefore, is the totality of implicit memory of perception and behavior mediated by the body and located in the rediscovery of earlier experiences (Fuchs, 2012). Merleau-Ponty described body memory as an essence that is implicitly persevered as a pattern, or the character of existence (1962; 2015; O'Connor, 1980). It is the human capacity to sense. The body

memory defines the totality of corporeal predispositions developed over the lifespan of an individual's life to convey the implicit effectiveness of the individual's past performance in the present (Casey, 1989, 2009; Fuchs, 2012).

*Clinicians:* for the purpose of this study, clinicians are the participants, comprising licensed therapists, psychologists, psychiatrists, counselors, and social workers, who provide therapeutic interventions, treatments, or services.

*Cognitive map:* a term coined by Tolman (1948) to describe indications and substantiations of the spatial blueprint in the human mind; the map metaphor has had a substantial influence on the way scholar practitioners think about spatial memory, defense mechanisms, and amnesia (Olson et al., 2011).

*Coping:* Lazarus and Folkman (1984) define coping as “constantly changing cognitive and behavioral efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). According to Ehlers and Clark (2000), the cognitive processing associated with coping during a traumatic event depended on characteristics of the trauma, and the appraisals of the trauma and its sequelae, previous experience(s) of trauma, the individual's level of intellectual ability, and prior beliefs, including available support or anticipation of support. For this study, “coping” means the deliberate use of adaptive managing or surviving mechanism or strategy that results in healthy and effective ways of managing stressful or traumatizing situations.

*Defense cascade or cascade of defense reactions:* the theoretical continuum of defense mechanisms. The cascade is the rational order of defense responses that intensify or escalate in reaction to proximity to vulnerability and risk. Scholarly knowledge about

the cascade is a result of evolutionary biology, neurophenomenology, and psychophysiology (Schauer & Elbert, 2010).

*Defense mechanisms:* conscious or unconscious personalized strategies used by the self to circumvent, deflect, or avoid perceived threats or challenges originating externally, i.e., from another person or the world, or internally, i.e., from the individual's id or superego (Freud, 1962, 1966; Olson et al., 2011; Plutchik, 1995; Prochaska & Norcross, 2007; Trull, 2005).

*Defense strategies:* the lowest level of coping on the continuum of defense mechanisms (Keener, 2012). Several forms of these strategies can include obsessive behaviors or the use of alcohol and narcotic substances to “numb the senses,” contribute to inattentiveness, or forget traumatic or distressing memories.

*Emotion:* a pattern of responses consisting of behavioral, autonomic, and hormonal components. Emotion is the self's reaction to the other and the world environment, a preparative act to perceived significant stimuli. If the self perceives and understands the stimuli as potentially threatening, it activates a defensive motivational system to prepare the body and conscious self for avoidance reactions. The behavioral response to an emotion consists of corporeal and muscular pre-action, i.e., anticipation, or reaction to a particular situation. Hormonal responses expedite specific behaviors and accelerate mobilization of energy for dynamic movement (Carlson, 2010; Hatfield et al., 2014; Kuzinas et al., 2016).

*Emotionally arousing events:* events that tend to be more unforgettable and impressionable than those of ordinary daily life (Van Giezen et al., 2005). Due to the view that memory is dynamic, continuously malleable and subject to distortion, the

remembrance of events can change over time. Trauma-related and emotionally arousing memories appear to be less indelible and consistent over time, and therefore more easily retrieved, than emotionally arousing events that are not trauma-related.

*Emotional dysregulation*: the breakdown of the psychophysiological and neurobiological process associated with emotional regulation. Emotional dysregulation is an often rapid, temporal process of dysregulation exhibited by a heightened intensity of emotions, indigent comprehension of one's own emotions, and a negative reactivity to one's emotional state.

*Expectations or expectancy*: an individual's idea, belief, or self-determination about what circumstances happened in the future to the self or the world. Expectations habitually guide individual behavior and make it easier to forecast or foretell what happened next. A permutation of cognitive processes, communication with others, salient subjective experience, and cultural customs and norms (Van Boven & Ashworth, 2007) establish expectations.

*Fading affect bias*: the suggestion that as individuals experience negative events (i.e. traumatic incidents or undesired life changing world experiences), there is a differential fading of the affect triggered by autobiographical event recall (Landau & Gunter, 2009). As individuals display expressly resilient initial reactions to negative incidents, cognitive processes related to social discourse increase the fading of affect associated with adverse life events (Ritchie et al., 2006; Skowronski et al., 2004).

*Interference*: for the purposes of this study, interference is a phenomenon of human memory comprising the complexity of original autobiographical data, where previously consolidated autobiographical memories interacts and interferes with

acquiring or understanding new information (e.g., behavioral, emotional, etc.).

Interference can inhibit or restrain influential or harmful data from becoming processed into an autobiographical memory (Anderson, 2003; Cyr et al., 2017; May et al., 1999).

*Living experience*: an existential, phenomenological concept in which the essence of an experience is ever-changing (Shosha, 2012) due to the continually changing dynamics of the psyche (i.e., oppositional drives of the id and ego), the other, and the world. Also, the manic updating of autobiographical memory subsequent to recall and reconsolidation (Anderson & Bower, 2014; Ceci & Ornstein, 2014; Klein, 2016). Drawn from Moss's (2015) definition of experience and Husserl's (2012) understanding of living present, this study's definition of living experience is derived from both the internal conscious and the consciousness of the external living world (or lifeworld).

*Memory distortion* (aka, memory disruption): distortions of reality that occur within a memory, which Schacter (2002, 2003) characterized into seven specific processes: transience, absent-mindedness, blocking, misattribution, suggestibility, bias, and persistence. Individuals use these processes unconsciously to lessen the distressing consequences of avoidance or defense strategies.

*Memory extinction*: the process in which a conditioned response progressively weakens over time as an individual learns to disjoin a reaction of a stimulus, or the loss or decrement of the conditioned response to the distressing or traumatic event, after unreinforced by the conditioned stimulus presentation (Garelick & Storm, 2005).

Attaining *memory extinction* is the process of developing a new memory that controls conditioned responses (e.g., fear, anger, etc.).

*Memory inhibition*: the subconscious ability to intentionally not remember irrelevant information. For the purposes of this study, memory inhibition is a cognitive inhibition which discontinues or predominates over a mental progression, in whole or in part, with or without intention (Catarino et al., 2015; Dalgleish et al., 2007).

*Motivated forgetting*: Freud's (1894) theory, which suggests that forgetting is a form of defense mechanism in which people are motivated by the desire to forget distressing, traumatic, or disturbing and unwanted memories, either consciously via suppression, or unconsciously via repression (Freud et al., 1973; Schacter, 2002, 2003; Scott-Tilley et al., 2010).

*Patients*: for the purposes of this study, "patients" refers to re adult current or former individuals who previously endured traumatic amnesia and who recollected all or most aspects of their previous traumatic event(s). These are all persons who sought, entered, and completed therapy for their memory and anxiety-related issues.

*Preconscious*: the ideas, considerations, opinions, and thoughts that are unconscious at a particular moment, but which are not repressed (Lapointe, 1971; Mishara, 1980; Modestino, 2016). They are available for recall and may easily become conscious. Being preconscious implies that the information is accessible for cognitive processing; however, it is maintained as unrestricted information outside of conscious awareness. One common form of preconscious processing is priming (Strenberg & Sternberg, 2012).

*Psychotherapy*: a conventional expression that describes the process of psychologists, psychiatrists, or other mental health providers treating distress and mental or psychological disorders by using verbal and psychological techniques (Prochaska &

Norcross, 2007). Several therapy frameworks successfully treat traumatic amnesia, but they are beyond the scope of this dissertation. A future study may review comparative uses of one therapeutic method over another, and the therapeutic decision-making process.

*Reconsolidation*: a second memory consolidation cascade that requires unambiguous and distinct neurophysiological dynamics (Suzuki et al., 2004). Also, the process of recalling and actively consolidating previously consolidated memories. It serves to maintain, strengthen, and modify long-term memories (Tronson & Taylor, 2007). Introducing a short-term, irrelevant, and unanticipated stimulus, one capable of shifting or superseding a concomitant and conditioning fear during reactivation (Crestani et al., 2015) may disrupt the process of reconsolidating traumatic memory.

*Resilience*: often based on personal characteristics, familial, and intrafamilial environment, resilience is associated with the individual's ability to physically, emotionally, and psychologically overcome or recover from adversity or traumatic challenges, and to achieve a positive outcome (Brooks et al., 2015; Trull, 2005).

*Retrograde amnesia*: a cognitive or physiological impairment of remembering information preceding a brain deficit or traumatic event (Stirling & Elliott, 2008). It involves the loss of temporally graded memory, while sparing remote memory, or information formed before the onset of amnesia.

*Self*: an individual's awareness of being and functioning as divergent and individualized from everyone or everything else (Trull, 2005). Freud's (Freud & Bunker, 1936) theory emphasized the three levels where the psyche, or self, exerted influence (the conscious, preconscious, and unconscious), while also describing components of the

psyche (ego, id, and superego). Heidegger (1982) posited that the living world surrounding beings, what he called *Die Umwelt*; the other-world or the people surrounding the self, *Die mitwelt*; and the self-world, *Die selbswelt*, *Die eigenwelt*, or *Dasein*, are all external composites of the self (Mishara, 1990; Mølbak, 2007; Rajan, 1991; St. Clair, 2004).

*Self-referential effect*: the tendency in both semantic and episodic memory for people to encode, consolidate, and reconsolidate information in diverse ways depending on how the *self* is associated to or referenced by the information (Klein, 2016). For example, when a person attempts to recall or reconsolidate information that is associated with their self, the recall or reconsolidated rate can improve depending on the relevance of the memory.

*Self-regulation depletion*: difficulty inhibiting urges and regulating desires; self-regulation depletion is also known as *ego depletion*. Cognitively, it emphasizes the role of a limited mental capacity or resources that, when exhausted, increases undesirable and unsociable behaviors. Phenomenologically, self-regulatory depletion enhances the strength of desires and emotions from the *id*, in the absence of any *ego* demands to regulate behavior (Vohs & Heatherton, 2000). When the individual's capacity to self-regulate is depleted, self-monitoring decreases and motivation shifts towards (self) gratification (Hofmann et al., 2007; Hofmann et al., 2012; Vohs & Heatherton, 2000; Shmueli & Prochaska, 2009; Muraven et al., 2002; Wagner et al., 2013).

*Stress*: an emotional process, physiological reaction, or mental or emotional condition resulting from adverse stimuli or demanding circumstances. Stress may present in many symptoms, along a diagnostic continuum from mild to acute, as a result of direct



or indirect exposure to a traumatic event (American Psychiatric Association, 2013).

“Chronic stress” indicates a long duration and frequency of comorbid symptoms, while “acute stress” indicates the severity or intensity of the symptoms—e.g., severe anxiety, dissociative disorder, and other symptoms—that occur within one month of an extreme traumatic stressor (American Psychiatric Association, 2013; Lagraauw et al., 2015).

*Temporal consciousness* (aka, temporal awareness): the thematization of an object in the course of temporality, or consciousness of time (Barba & Boissé, 2010). It is an organized, original, and irreducible projection of consciousness that addresses the world in terms of the past, the present, and the future, and that poses objects according to the structures of time. As a cognitive precept, temporal consciousness is that data inscribed into the memory that allows it to function somewhat like a “time stamp,” allowing individuals to be consciously aware of a personal past, present, and future.

*Trace decay of forgetting*: a term coined by Thorndike (1913) that describes short-term working memory; over time, individuals can no longer retrieve certain memories because physical and/or chemical changes in the nervous system weakened their traces (Brown, 1958; Ricker et al., 2016; Sadeh et al., 2016). Forgetting, therefore, occurs as an outcome of the automatic decay or fading of the memory trace.

*Traumatic amnesia*: one of the most prevalent and documented forms of amnesia, traumatic amnesia is the loss or absence of recollections of traumatic experiences (Brooks et al., 2015; Hooper et al., 2014; Rosellini et al., 2014).

*Unconscious*: that portion of the mind (versus “component of the brain”) that is not accessible to awareness (Trull, 2005).

### **Assumptions and Scope**

This study plans to guard against three principal assumptions that may arise out of the nature of the subject. After articulating these concerns and the steps I took to bypass or mitigate them, the section defines the scope of the dissertation.

The first assumption was Moerer-Urdahl's discovery (in Creswell, 2014) that studying phenomenological essence was difficult when the researcher uses a heterogeneous group of study participants. Although one may select all study participants for their experience of a particular phenomenon, as individuals, their experiences vary immeasurably due to their social and cultural backgrounds. This diversity indicates that a researcher should determine and understand participant background thoroughly before commencing work (Robertson, 2010), setting aside as much as possible his own biases, assumptions, and personal experiences, and instead placing appropriate emphasis on participant experiences. Such familiarity with the participant occurs when the researcher reviews their *Informed Consent* and *Study Surveys* and converses with them to establish rapport prior to the study interview.

The second assumption has to do with the validity of the data. Unless participant pathology disclosed issues of personal integrity, the researcher assumes that the study participants openly and honestly responded to all of the interview questions. This trust was crucial, as the conundrum of relying on the memory of a [former] trauma-related amnesia patient could raise the question of the value of the study data. In fact, the effect of chronic stress (Sandi, 2007), memory relevance or context (Lee, 2009), or fading affect bias (Rubin et al., 2008; Skowronski et al., 2004; Williams et al., 2007), to name but a few detriments to memory accuracy, are not phenomena under study here. Rather,

the focus was on understanding the function and structure of individual experience before individual remembering for traumatic amnesia patients. For this reason, as Chapter 3 discusses in more detail, participants were screened for physiological/neurological detriments, memory-related diseases, pharmaceutical and other drug affected memory, and/or head trauma. This study did retain the concern that individuals may believe that they have forgotten details of a traumatic event and the details of their retrograde amnesia that followed their trauma event. They come to this understanding after receiving treatment, suggesting that individuals may, at least sometimes, become confused about exactly what they are discovering (Hurlemann et al., 2007; Schooler, 2001). The researcher also guarded against *cryptomnesia*, a phenomenon in which a suppressed or forgotten memory reappears and the individual mistakes it for a new experience, for it may alter the study's phenomenological epoché (Beaufort et al., 2013; Gingerich & Sullivan, 2013; Robertson, 2010). My awareness of the issue, and familiarity arising from coping with previous traumatic experiences, prevent such a phenomenon from occurring during the conduct of this study.

A third assumption to guard against revolves around the source of the data. The study employs phenomenological epoché, an assumptive grouping or bracketing of study data, as the principal means of organizing collected participants' responses to intentional questioning and narratives (Davidsen, 2013). The process greatly contributes to this researcher's interpretation of the "*capta*" (Orbe, 2009, p. 750), or conscious experience. I assumed that those participants who had undertaken and/or completed a prescribed course of treatment had been aided in reaching their desired treatment goals. The study did not, however, provide a narrative about treatments, nor compare treatment

efficiencies or efficacy. The purpose of this study was not to understand participants' individual treatment successes or failures. Instead, it was to improve clinicians' understanding of the role played by possible invariant structures and features of experiences that precede the return of autobiographical memory in individuals with trauma-related amnesia.

In terms of scope, this research focused on individuals who had experienced autobiographical memory retrograde amnesia following trauma, and the therapists who work with them. Individuals who had not experienced these specific events, or who had but did not seek treatment, are not subjects of this research. Essentially, it is not possible to generalize this study's findings to other populations. Therapists who work with patients who have regained memories of a traumatic event are subjects of the study, but again, these findings also cannot apply to other types of therapeutic interactions.

### **Delimitations and Limitations**

This study focused on participants who reported having traumatic amnesia between December 2015 and December 2018, and the researcher collected their data from January 2, 2020 through December 30, 2020. In recommendations for collecting data for qualitative phenomenological studies (Creswell, 2013; Patton, 2015), the selected sample size or pool of participants was not representative of the total population of recovering amnesiac patients. Instead of restricting the study to a single research site, and therefore a single regional or local population, the researcher collected data from numerous, geographically diverse localities.

Other than age, typical demographic characterizations did not form delimitations for this study; the study did not exclude subjects based on gender, sexual orientation,

education level, occupation, etc. (Lee, 2009). The only delimitations for this study's goal are that (1) the patient participant had to have experienced trauma during a time period that ranged from as recently as 14 hours to as long as 36 months before interview); (2) the patient participant had traumatic autobiographical memory retrograde amnesia, for which they sought the help of a clinician—such as a therapist, counselor, or other healthcare provider—in order to cope with their amnesia or the event; (3) the patient participant was not diagnosed with a neurophysiological deficit or cognitive performance deficiency; and (4) the patient participant had completed a program of psychotherapy which contributed to regaining their memory of the traumatic event. The sole key delimitation for the clinicians, i.e., the study's other population, was awareness of having treated a patient who fulfilled the participant profile described above, perhaps even one of the study's patient participants.

Recruiting for the study may occur in various sources within the continental United States. English was be the language for all conversational interviews, meaning that the findings cannot be generalized beyond this country or parts of Canada.

A potential lack of objectivity could emerge during the completion of this study, given that the researcher has personally experienced the phenomenon under investigation. Such lacking objectivity could potentially lead the researcher to over-identify with study participants, contrary to the phenomenological epoché. Stringent procedures countered the limitation, for e.g., using semi-structured interviews to minimize leading questions, and member-checking the data to ensure that participants approve their own intentions and meanings.

### **Study Significance**

The study addressed the aforementioned gap in understanding the phenomenological structure of the lived experience of the recovery of memory from amnesia. The study's aim was to discover a unique phenomenon from the participants' description. This study endeavors to understand processing of autobiographical memories associated with the traumatic incident or event but interrupted by retrograde amnesia. Therefore, the researcher intends to shift between being present to the phenomenon of remembering, and being present to the subject-subject relation to a subject-phenomenon relation (Englander, 2012). To do so allows the researcher to address an under-researched area of memory processes and neuropsychology (Goldinger & Papesh, 2012), within a psychological field of study that has expanded over the past decade (Milad & Quirk, 2012). The significance of this study was that it aims to discover the meaning of the phenomenon of remembering trauma event details subsequent to attending and completing psychotherapy. It used the qualitative phenomenological focus and methodology, and it also was informed by neuropsychology and neurophenomenology, which integrate natural scientific fields that study remembering as isolated processes (Bockelman et al., 2013; Mølbak, 2012; Strle, 2013).

The positive social change implications of this study may provide much-needed insights into processes by which clinical psychotherapists could effectively and accurately identify the return of a patient's autobiographical memory (Ehlers et al., 2014; Gillespie et al., 2002; Skowronski et al., 2004), if it were previously lost due to non-physiological trauma (i.e., psychological or emotional traumatic events). Such clinician observations may bear beneficial information about a patient's openness to a quick

therapeutic resolution to trauma as revealed through exaggerated autonomic responses (Scott-Tilley et al., 2010). Escalation that occurs when a patient was unable to adapt to or cope with trauma may force them to succumb to traumatic amnesia. The clinician's understanding of the participant's lived experience, and the invariant structure and features of the patient's emotional states (such as fear, anger, regret, horror, helplessness, shame, guilt, or anxiety), should aid the clinician to appropriately address the patient's traumatic experiences, and alleviate the impact on a patient who re-experiences the traumatizing experiences as their autobiographical memory was retrieved. Such patient and therapist identification of the invariant structures and features may subsequently allow clinicians to terminate psychotherapy efficiently (O'Donohue & Cucciare, 2007). As a result clinical resources may then be effectively reallocated, and thereby increasing the effectiveness of the overarching therapeutic process for the overseeing agency.

Insights may occur through realizing when a psychotherapy has contributed to the patient's memory performance, indicated by the emergence of invariant structures and features as mentioned earlier. These insights helped patients readily cope with their traumatic experiences and terminate psychotherapy when it was no longer necessary (Nielsen et al., 2009). Understanding the experience that underlies how patients start to recall traumatic autobiographical memory helped inform clinicians (therapists, counselors, and healthcare providers) with planning programs and building individual resilience and help prevent further psychopathology (Vyas et al., 2016). Most essentially, insights from this study should also aid practicing clinicians who use different therapeutic models, and supervisors and administrators of therapeutic programs associated with addressing patient emotional trauma and recovery from retrograde amnesia.

The potential significance and positive social change implications of this study include a list of emotional invariant structural features that aid the therapist in recognizing the patients' return of their autobiographical memory. This social change, in turn, may assist in shortening the total therapeutic duration and lessening any sudden or unexpected patient psychological or emotional trauma realization (i.e., reliving the traumatic memory) which contributed to the patient's original retrograde amnesia. Such a realization may promote an effective psychological adjustment of amnesiac patients during the "sensitive period" (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004) when traumatic memory extinction may strengthen memories of traumatic events.

After retrieving fragmented segments or the entire traumatic memory, consolidated memories possess a temporary vulnerability to disruption for a limited period (Bustos et al., 2009). The invariant features of the experience, including physiological and emotional changes, should simultaneously signal the retrieval. Knowing how, why, and when the critical time for treatment develops for individual traumatic amnesia patients should indicate one's understanding of the invariant structures and features of the experience preceding the reactivation and reconsolidation of traumatic event memories (Wichert et al., 2011). Additionally, realizing preceding invariant structural features to autobiographical memory-return may decrease total therapeutic duration, and save costs, resources, and time for the patient, clinician, and community. It may further minimize bureaucracy, and thereby create a paradigm shift that further informs and influences other professionals.

Bronfenbrenner's ecological systems theory (1979) indicates the possibility of social change as a result of this study's research outcomes. The entosystem, (i.e., the



holistic interactivity of an individual physiology and emotion), the microsystems (i.e., family, church, peers, and school) and the macrosystems (e.g., global institution and cultures) all stand to profit. At the microsystem level, resolving the patient's memory loss as soon as clinically practical, while alleviating the potential for additional emotional harm, may contribute to resolving comorbid mental illnesses associated with memory loss (Nagel et al., 2005; Vasterling et al., 1998) as well as improve the general physiological health of the patient (Comijs et al., 2002; James & Gilliland, 2013).

Likewise, following their start of intervention or therapy, identification of when the patients first get their memory back may free up social services, allowing agency or institute administrators and industry personnel to redirect those resources (time, staff, and material resources), once linked to treating the amnesiac patient, to other patients, and to add to the workforce contributing to the economics of the community, state, and other entities (Jacob, 2015; Sherbourne, 1988). Conversely, medical or psychological professionals broadened their and associated professions' knowledge, which may then also contribute to individual and institutional understanding, enhance collaboration among social service agencies, and contribute to economical distribution, use, and conservation of resources.

### **Summary**

This chapter provided a general overarching description of the study, including a brief explanation of the research problem, and a statement of the study purpose. Following the purpose statement, I stated the research questions and provided a synopsis of both the theoretical and conceptual foundations used for this study. The next section included the nature of this study and expounded the rationale for a qualitative

phenomenological study design. In order to provide a clear understanding of the concepts, theories, methodologies, and other aspects of this study, the next section defined principal terms. The last three sections addressed several assumptions, the steps to mitigate them, the scope, along with the limitations and delimitations specific to this study. Finally, the chapter offered a discussion of the study's significance to clinical psychology and psychologists, and its implications for social change.

While Chapter 1 provided an overview of this phenomenological study, Chapter 2 reviewed the literature, beginning with current and canonical research on consciousness and perception, memory formation, formation of and coping with traumatic events, remembering, and sequelae. The literature on invariant structures and features associated with traumatic events and its theories—such physiological pathways of memory, the influence of defense cascade on remembering and neuropsychological systems, and psychotherapeutic strategies—follows. Chapter 2 ends by presenting literature to support the claim that the best approach to phenomenological research was through existential phenomenology. Chapter 3 more thoroughly describes the research design, including the criteria for selecting the participants, the ethical steps the researcher took to protect the participants, and details about how the data was collected. The chapter also discusses the methodology and data analysis in detail. Chapter 4 provides a description of: (a) the pilot study, (b) the research setting, (c) study participant demographics, (d) data collection, and (e) data analysis. It also provides a thorough description of the trustworthiness of the study methods, results of the study. Chapter 5 examines the implementation of the results, identifies several limitation of this study and provides recommendation for further

research. Last, Chapter 5 includes a discussion of positive social change and methodology implications derived from study results.

## Chapter 2: Literature Review

Chapter 2 comprises a thorough literature review for relevant key concepts of this study, including memory, amnesia, remembering, specific physiological responses, emotion and defense cascade strategies, and psychotherapy. The chapter also reasserts the study's problem and purpose statements and discusses the significance of this study's outcomes, which are to provide potential closure to clinical patients who had lived through traumatic life events and to offer enhanced knowledge to practicing clinicians in the hope of addressing the gaps in the literature. These sections include research and commentary on the physiology and neurophysiology associated with emotional states and remembering (i.e., visible human physiological changes, including pupil dilation and blinking, facial and body movement, galvanic skin response, heartrate changes responses, etc.). This area of the chapter also includes research on the physiology and neurophysiology of memory, the continuum of coping strategies, defense mechanisms, or the defense cascade, and culminates with traumatic amnesia, and amnesia- or memory-change associated psychopathologies. These latter may include posttraumatic stress disorder (PTSD), amnesiac syndrome disorders (ASD), traumatic dissociation, major depressive disorders (MDD), and dissociative identity disorder (DID), along with the psychotherapies used in their treatment (Wilson, 2007).

The initial literature review for this dissertation consisted of research summarized in Figure 1 as shown in Chapter 1. Figure 1 also illustrates some exceptions to the discussion, as it would be prohibitive to discuss all variants in the literature indicating how emotional adaptation was linked to memory recollections, or physiological adaptation concurrent with affect changes. The exceptions, however, support these linkages.

Goldinger and Papesh (2012), exploring pupil dilation and constriction, determined that changes in the physiology of the oculus corresponds to emotional changes and arousing stimuli associated with recollection or reconsolidation of traumatic memory. They ascertained that pupil neural pathways responsible for task-evoked pupillary reflexes (TEPRs) are linked to a role for memory processes, and that studying changes in the human eye pupil was implicit for investigating the cognitive processes underlying the creation of new episodic memories and their later retrieval.

Conversely, Harrison et al. (2006), studying the central mechanisms engaged in processing sadness, observed that pupil size modulates individual perceptions of another person's emotional expressions. The researchers probed the principal processes modulated by accompanying perception of pupil size in emotional facial expressions. They demonstrated via experiments that shrinking pupil size enhanced ratings of emotional intensity and valence for sadness in angry or neutral facial expressions. Conversely, they ascertained an identical phenomenon, where the observed pupil size mirrored the observer's own pupil size, noting the empathetic contagion by creating an autonomic sensitivity to an individual's own emotional adaptation. Their findings provided evidence of a perception–action mechanism that extends to nonvolitional operations of the autonomic nervous system.

Laeng et al. (2012) researched the concept of the eyes as a pathway to an individual's preconscious. They successfully investigated pupillary responses as representative of the intensity of cognition and memory activity, and of recollection of significant memories, particularly changes in allocating attention and consolidating perception, regardless of the participant's awareness of such changes. Laeng and

colleagues showed the occurrence of pupillary responses may occur subsequent to recall of traumatic memory.

Along similar experimental research paths, Sinnott et al. (2007) investigated visual dominance and attention. They revisited research on the Colavita effect, where selective attention to a particular recollection mechanism may modulate visual dominance, contribute to a reduction of attention and presentations of unsolicited emotional adaptation, and respond to visual stimuli due to cognitive changes associated with recall and reconsolidation of previously traumatizing memory. Sinnott and colleagues showed the eye movement and eye freezing responses may occur subsequent to recall of traumatic memory.

In addition to research on the physiology of the human eyes, researchers had also examined the relationship of facial and posture changes associated with developing emotional states. For example, Dael et al. (2012) demonstrated with experiments that body and posture movements may occur in conjunction with specific adaptive responses as a result of adapting to emotion. Two years later, Levenson (2014), via experiments, demonstrated how emotion constructs may influence the organization of the autonomic nervous system and other physiological systems, e.g., visible autonomic nervous system mediated by changes in emotional states.

Zoladz and Diamond's (2013) investigation of behavioral and biological markers associated with recollection of traumatic memory was an important study. These researchers searched for and provided clarity in much conflicting literature concerning memory recovery and adaptive physiological responses. They summarized their extensive examination of the PTSD literature. They also ascertained different physiological and

biological profiles for different subtypes of the disorder underpinned by cognitive and emotional state changes, including those that are in part associated with trauma memory recollection.

Researchers have also investigated galvanic adaptation or perspiration stress as a response to traumatic memory recall. Christian (2018) explored the relationship between galvanic skin response and electrodermal activity as a physiological response to variations of electrical properties when people adapt to emotional stress associated with traumatic event recall. Christian, through experimental sensory monitoring and unconditioned response elicitation, observed changes corresponding with affect change concomitant to recalling traumatic memory. Culbertson (1995) provided a phenomenological narrative of a trauma survivor's unconscious preoccupation with the suppression of trauma memory, while the autonomic response system provides physiological stress responses associated with adapting affect.

Rubin et al. (2004) demonstrated that for a partial separation of cognitive outcomes of subsequent experiences of an affect corresponding to instinctual symptom changes were consistent with assessed trauma recollection measures. In similar research, Schauer and Elbert (2010) explored survivors' recall of traumatic memory-elicited emotions and the fragmentation that occurs in the autobiographical memories of these survivors. The researchers provided evidence that unconscious recollection of complete, for example not fragmented, trauma memories corresponded to an increase in adaptive affect response.

Earlier, Holmes et al. (2005) explored intrusive images and hotspots of trauma memories in PTSD patients. They reported that cognitions and emotions during hotspots

of the traumatic experience impact the PTSD patient not only in terms of physiological stress response to the threat, but also in terms of the person's changing sense of self-reflection. This self-reflection in turn agitates their emotional state, which further influences the individual's physiognomy.

From 2000 through 2007, five in every 100,000 people in the United States reportedly suffered from anterograde amnesia (Owen et. al, 2007). Scott-Tilley et al. (2010) posited that the lifetime exposure to traumatic events reached almost 90% for the general population in 2010. Keret et al. (2016) determined that the incidence of amnesia is growing: 20 in 100,000 people in the United States suffer from transient, traumatic amnesia each year. Clinicians who provide service to amnesiac individuals may not be aware of a patient's lived experiences in regaining their autobiographical memory of traumatic life events. Such invariant features of patients' autobiographical memory returning may be present after psychotherapeutic treatment or intervention has started for the specific nonphysiological emotional traumatic events (Grilli & Glisky, 2013; Nielsen et al., 2009). To date, research has not sufficiently addressed the potential for emotional and behavioral invariant structures of autobiographical memory return (Goldinger & Papesh, 2012). Understanding the presence of these lived experiences and how they relate to patients' recovery of traumatic memories may decrease the total time spent in therapy, thereby possibly saving time and resources (Baker, 2009).

This research study intends to advance clinicians' understanding of possible clinical and invariant structural features of memories impacted by retrograde amnesia preceding the return of the patients' autobiographical memory. To date, research has focused on physiological indicators at the moment of or following the patient's memory



return (Goldinger & Papesh, 2012; Harrison et al., 2006; Laeng et al., 2012). The gaps in evidence-based phenomenological research on this phenomenon arise out of insufficient, biased, or inconsistent information (Robinson et al., 2013). To address these shortcomings, the current study initiated a qualitative phenomenological exploration of behavioral or emotional invariant features in patients, and the potential etiology of autobiographical memory return as a result of psychotherapy.

### **Significance**

This study was unique in addressing the aforementioned methodological and conceptual gaps in understanding the potential for behavioral or emotional indicators, for it focuses on an under-researched area of memory processes and neuropsychology (Goldinger & Papesh, 2012), using a psychological field of study that has expanded over the past decade (Milad & Quirk, 2012). This study may also succeed in demonstrating the diminishment of the previous amnesia phenomenon, and the retrieval of previously unconscious autobiographical memories associated with the causal traumatic incident or event. There are several positive social change implications associated with this study, but one stands out: it may provide valuable insight into processes by which psychotherapists could rapidly and accurately identify the return of patients' autobiographical memories, if the latter were lost due to non-physiological trauma.

### **Literature Search Strategy**

I obtained literature to review by searching electronic databases, journals, theses and dissertations, internet sites, reference lists of relevant articles, and research documents. The electronic databases principally included: Academic Search Premier; CINAHL; Education Search Complete; MedlinePlus Health Information (MEDLINE);

PsycARTICLES; PsycINFO; Science Citation Index; and the Social Sciences Citation Index. The project also consulted publisher databases, such as Elsevier, Springer, Taylor & Francis, and Wiley Online. Further utility research protocols and inventories include PsycTESTS; Mental Measurements Yearbook with Tests in Print; and Health and Psychosocial Instruments (HaPI) databases. Google Scholar supplemented the research databases. The primary keywords for the searches included *memory* or *autobiographical memory*; *anxiety* and *stress*; *amnesia* and *traumatic amnesia*; *remember(ing)*; *phenomenology*; *neurophenomenology*' *awareness*; *experience*; *perception*; *interpretation*; *physiological response* and *brain, face, eyes, body movement, heart, skin conductance*; *emotion*; *defense mechanism*; *dissociation*; and *psychotherapy*. See Table 1 for secondary and tertiary keywords. These search terms were also accompanied by the names of scholars on individual memory, remembering, amnesia, experience, and phenomenology, including in alphabetical order, Arcaya (1989); Casey (1976); Fuchs (2012); Giorgi (2009); Gruba-McCallister (1993); Heidegger (1982); Husserl (1975); Kondora (1995); Lapointe (1971); Larrabee (1995); Merleau-Ponty (1963); Mishara (1980); Mølbaek (2012); Nader and Hardt (2009); and Romanyshyn (1977).

**Table 1***Dissertation Research: Articles by Source Database*

Database Name	Number of Articles	Percent of Total
Academic Search Complete	43	9.37%
Brill Online	1	0.22%
British Library Serials	9	1.96%
Business Source Complete	1	0.22%
Cumulative Index of Nursing and Allied Health Literature (CINAHL)	4	0.87%
Educational Resources Information Center (ERIC)	5	1.09%
Education Research Complete	2	0.44%
Education Source	5	1.09%
Expanded Academic ASAP—Gale	4	0.87%
Google Scholar (includes 5 video transcripts)	31	6.75%
Journal Storage (JSTOR)	2	0.44%
MedlinkPlus Health Information (MEDLINE)	108	23.53%
NBCI (NIH)	4	0.87%
ProQuest E-book Central, Dissertations, Grad Works, & Group Works	10	2.18%
PsycARTICLES	54	11.76%
PsycEXTRA	3	0.65%
PsycINFO	61	13.29%
PubMed	1	0.22%
ResearchGate	3	0.65%
Science Citation Index	38	8.28%
Science Direct	9	1.96%
SocINDEX	3	0.65%
Social Sciences Citation Index	43	9.37%
SpringerLink	8	1.74%
Taylor & Francis	4	0.87%
Total	459	100%

To add breadth, searches proceeded via Boolean/Phrase operators and applied equivalents to subjects including counseling; education; health sciences and human services; psychology; and social work. The project relied on only peer-reviewed, full-text articles published in the English language. The search-limit start-date was when the database became available, and or the time frame for a researcher's body of work. These dates varied across databases. The end date was January 2, 2021, which was when this

researcher started data collection. In addition to electronic database searches, the project employed books, articles, and videos cited in metaanalyses and systematic reviews on the primary keywords above. The total number of items did not include dissertations, theses, or books unless obtained through an online database. The Google Scholar total includes Video transcripts.

### **Theoretical Foundation**

The theoretical foundations of this dissertation integrate concepts of memory formation and loss and, relevant social support systems across the curriculum of commonly manifested psychological and social philosophies. This section addressed principal theories based on these two classifications and indicates their origin or source. The discussion presents these theories' propositions or major hypotheses and delineates any assumptions of applying the theory. The section justified its selected grounded theories, how and why they relate to this dissertation, and how the project's research questions relate to, challenge, or build upon them. Qualitative research typically occurs where little theoretical guidance may exist. Rather than relying on many well-developed theories, this project uses qualitative research to aid in developing concepts associated with the cited phenomenon.

Multiple trace theory (MTT) is an alternative to the concept of consolidation. It theorizes that the hippocampus remains a fundamental component of the memory-trace, and that it is always involved in retrieving long-term episodic and autobiographic memories, regardless of their age. Those reactivated memories are reinforced, while others are allowed to fade (Hardt et al., 2013; Ricker et al., 2016; Sadeh et al., 2016; Thorndike, 1913). Representational cues that are relatively associated or juxtaposed

interfere with these memories, (Anderson, 2003; Bergström, 1894; Bergström, 1907), or the individual may forget them. Each time the afflicted individual retrieves and relearns—i.e., reconsolidates—a memory of a traumatic event or incident, they create a new memory trace. In terms of Tolman’s research, just as the experience of a traumatic event may create a negative landmark in consciousness, i.e., the memory of a traumatic event becoming reconsolidated, when the former conflict or inability to cope contributes to the employment of defense mechanisms, and is understood and reconciled through therapy, a new landmark (reconsolidation) is formed (Rieber & Salzinger, 2013; Tolman & Honzik, 1930). Retrieving or reactivating a memory trace leads to additional or replicated encoding, which both strengthens and changes that memory trace, making the details of the event more accessible. This process occurs either through updating the original trace or forming a new, alternate memory trace (Nadel et al., 2007). Conversely, the altered trace may integrate additional components from the context of memory retrieval, or even different information that the act of retrieval incorrectly or inadvertently generates.

In this regard, MTT provides a mechanism for Bartlett’s (2003) notion that as memories grow old and consolidate, they alter in quality as well strengthen. Altered memory trace, the diminished stores of personal resources and support, and developing or increased sensitivity to stress and trauma, therefore impacted the individual’s accurate reconsolidation and subsequent recall of autobiographical memory (Carlson, 2010).

While older theories, like those of decay (Thorndike, 1913) and interference (Bergström, 1894), remain controversial (Anderson, 2003; Cyr et al., 2017; Sadeh et al., 2016), their notion of landmark memory formation and forgetting, i.e., the amnesiac

effect, was at the core of current theories on the neural network and cognitive maps. Their associated representation of memory cues and trace landmarks, and the individual's subconscious or conscious use of defense mechanisms to cope with their experience of a traumatic event for which their resilience and coping skills were inadequate (Ekstrom, 2016; Ekstrom et al., 2003; Levenick, 2007). The theory of memory reconsolidation—which focuses on how memory reconsolidates into flexible yet unstable cognitive maps of autobiographic memory, and which later reestablishes their stability—replaced the older theories' outdated notions. It therefore applies for the purposes of this study.

Memory Reconsolidation Theory refers to the process of returning memory traces to stable, long-term storage (Barrett & Sherry, 2012; Breedlove & Watson, 2013; Carlson, 2010). The patient, when influenced by therapeutic or pharmacological processes, can retrieve fragmented traumatic memory traces, which makes the traces unstable and susceptible to change or extinction (Van der Kolk, 2014). After reconsolidating the memory onto the cognitive map, autobiographical memory can reactivate. Retrieved memories, however, may become temporarily unstable and susceptible to disruption or alteration before undergoing reconsolidation and returned to a stable status (Nader & Hardt, 2009). As an alternative to continued fragmented memory traces, and the failure of using multiple defense mechanisms, repressing memories associated with a traumatic incident bring on a higher level of subconscious self-defense.

The transactional theory of stress and coping (Lazarus, 1966; Lazarus & Folkman, 1984) speaks diametrically to the interactive process between the self with the other or the world/environment during a stressful or traumatic experience (Lazarus, 1966; Lazarus & Folkman, 1984; Lazarus & Folkman, 1987). The theory delineates the stress response

process, including the functions of cognitive assessments and evaluations/appraisals and coping behaviors; the effect of the difficult or traumatic setting; and biopsychosocial reactions. The individual processes a cognitive assessment of a traumatic event and the environment from two different perspectives or contextual representations of the world. These are a primary and a secondary appraisal. When the individual is resilient and can cope effectively, the initial estimate of the trauma exposure could result in an initial appraisal that the traumatic stressors are a challenge to be overcome. Secondary appraisals are personally comorbid to the first appraisal in that the self calculates the available corporal, social, psychological, and quantifiable resources, and the aptitude to employ or expand them in dealing with the current demanding experience (Benight, 2012; Folkman, 1984). The individual's mind instigates specific coping or defense strategies based on both types of transactional appraisals.

The transactional theory of stress and coping is itself derivative of other notable theories that are relevant to the phenomenon under study. For example, the psychodynamic theory, which originated as Freudian psychoanalysis (Freud & Bunker, 1936) and continued in the work of his successors, Adler (1927), Erikson (1950), and Jung and Franz (1964) (Colarusso & Nemiroff, 2013), states that unconscious motives may influence individual behaviors and feelings. The theory, like the transactional theory of stress and coping, suggests that dynamic forces shape the individual psyche, and humanistic and systematic concepts from goal directions. Accordingly, when psychological problems arise in one's childhood or adolescent experiences, they may deflect the person's actions and affect as they develop into adulthood. The theory also asserts that facets of the unconscious mind are in perpetual conflict with the conscious

part of the mind. This conflict between components of the psyche creates anxiety, which, if it becomes unmanageable, caused the individual to use defense mechanisms, including disassociation (Freyd, 2007) or memory repression (Colarusso & Nemiroff, 2013; Holmes, 1990; Singer, 1995; Yakeley, 2013). When the conflict becomes manageable or resolved, such defense strategies may diminish and the cascade reversed or halted.

Memory repression theory conversely suggests that people may cope with traumatic memories by pushing them out of their individual consciousness, possibly via traumatic amnesia or psychogenic amnesia (Van der Kolk & Fisler, 1995), a process akin to a defense strategy. The consequences of this behavior allow the individual to maintain familial or social attachments to an undesirable person on whom they are dependent for attaining their motives or desires (Freyd, 1994). Traumatic or psychogenic amnesia, for example, increases with the prevalence of psychologically traumatic events (Brewin & Andrews, 2014; McNally, 2003). This theory posits conversely that when the trauma was addressed and the patient's resilience or coping strengthened, the original traumatic autobiographical memories may reemerge, along with a reciprocal change in emotional state (McNally, 2003).

Benight (2012) indicated that the transactional theory of stress and coping also derives from the social cognitive theory (Bandura, 1997), which posits that a bidirectional framework of interactions between the individual's behavior, body, and environment, known as "triadic reciprocal determinism," emphasizes self-regulation as a key mechanism for human adaptation. The triadic system operates through internal and external feedback systems that, like the brain's executive control, redirect efforts toward desired outcomes (Benight, 2012; Carleton, 2016; Grilli & Glisky, 2013). The self-



regulation process is principally determined by the traumatized individual assessing if their goal attainment was successful or unsuccessful. Through strategic planning and forethought, individuals impact their environments, rather than involuntarily respond to invariant and irregular environmental contexts. The person's perception of their capacity to enact a particular behavior that seeks a goal, a concept known as self-efficacy, is an essential component of social cognitive theory. It is essential because these attitudes have been reported to be highly predictive of cross-domain functional behavior (Benight & Bandura, 2004) and incentive or motivational strategies, such as efficient goal setting. Social support theory also posits that self-regulation may be supplemented by social, emotional, instrumental, or tangible support (Benight & Bandura, 2004).

Benight (2012) indicated that the transactional theory of stress and coping also derives from social support theory (Haber et al., 2007), which proposes that four types of support are necessary to influence behavior. These types are (a) emotional support (e.g., listening or offering a sign of affection); (b) instrumental or tangible support (e.g., financial assistance, personnel, or personal support availability); (c) informational support and appraisal or esteem support (e.g., encouragement); and (d) social support. During trauma events, social support is typically related to physiological, psychological, and social outcomes (Haber et al., 2007; Kaniasty, 2012; Nelson & Fivush, 2004; Urchino, 2006). When the individual's psychological dynamics are positive, social orientations also positive, and substantive resources available, the individual who faces the perception of a traumatizing event develops and implements positive psychological mechanisms for coping.

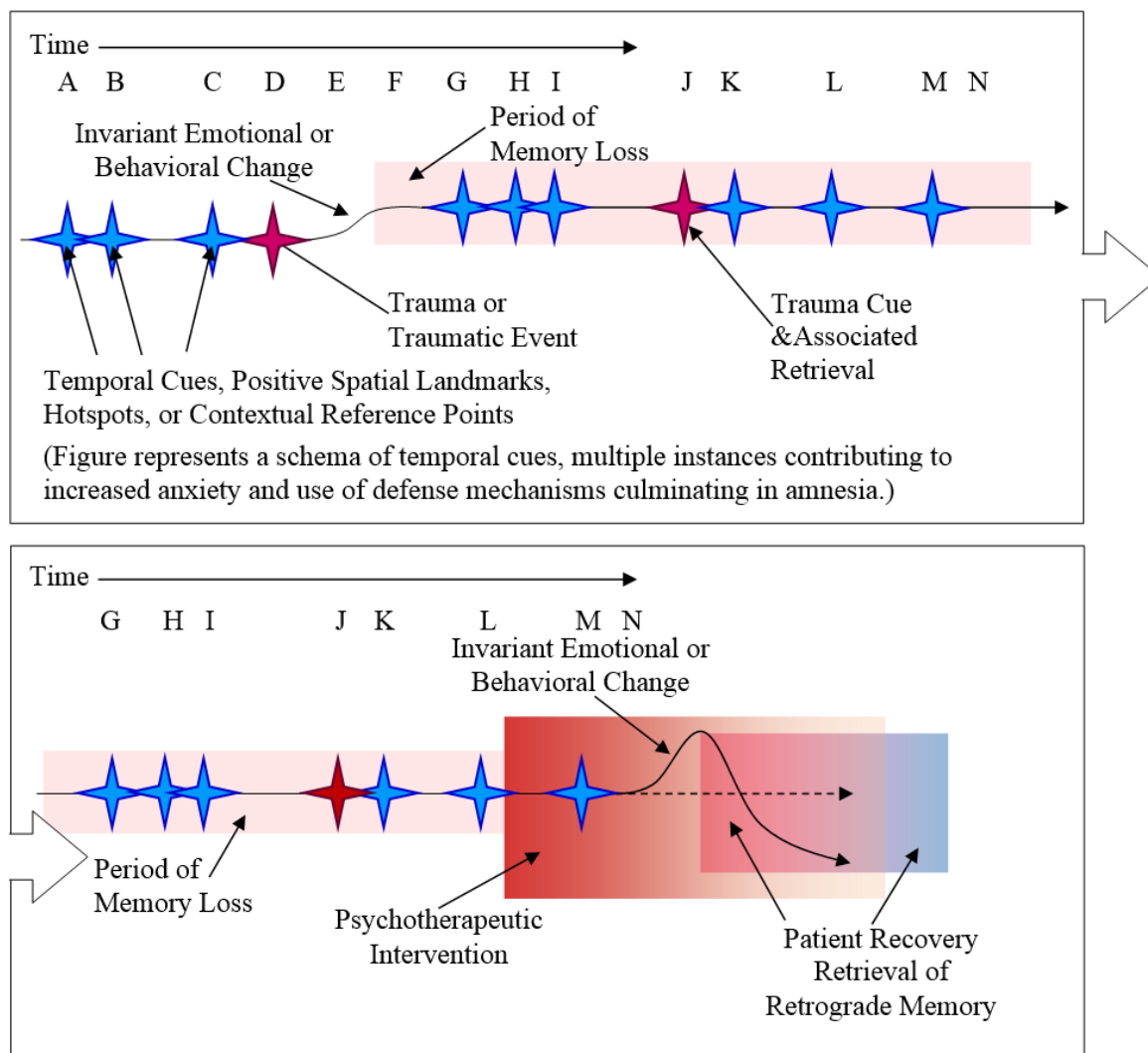
Terror management theory (Greenberg et al., 1986) is a more integral source for formulating the transactional theory of stress and coping. Terror management theory argues that individuals implemented specific psychological mechanisms to adapt or cope with their knowledge of the inevitability of death (Greenberg et al., 2007; Landau et al., 2007). The individual faces a juxtaposition where, on the one hand, they possess an instinctive desire for continued life, and on the other hand, they develop self-awareness of the inevitability of their death. This duality creates a potential for impairment, loss of voluntary muscle function, or loss of sensation (sensory paralysis). Some individuals experience emotional fear, but a “cultural anxiety-buffer” (Benight, 2012, p. 2) may manage this irrational terror. The buffer consists of a person’s ability to cultivate a worldview that elucidates lived experiences, standards attained from a learned sense of personal value, and the assurance of unembellished or symbolic immortality for those who continue to achieve the culturally incited standards. Using the terror management theory as a basis for research, Pyszczynski et al. (2004) have demonstrated that the cultural anxiety-buffer enhances psychological coping and resilience, thereby reducing anxiety and the accessibility of trauma-related lived experiential thoughts (Greenberg et al., 2014; Nelson & Fivush, 2004).

As a significant psychological or emotionally traumatic event occurs, one that is evidenced by an increase of a stress effect (Preston et al., 2013), the individual’s reaction to the resulting intolerable physiological state can facilitate the emergence of amnesia of affective autobiographical memory, or a defense mechanism cascade. There is currently a lack of research related to the corresponding increase in the participant’s stress levels, and how following a predetermined experience of psychotherapy or

psychopharmacological treatment may indicate the patient's recovery from amnesia of autobiographical memory. According to LeDoux (2002) and Wilson (2007), individuals may more easily retrieve memories once the impact of prior defense mechanisms become weakened or inoperable by using cognitive restructuring or equivalent psychotherapies. Therefore, once the traumatic autobiographic memory is reconsolidated, the emotional state at the time of the original memory formation matches the state at the time of retrieval (Figure 2). In addition to the previously discussed theories of memory formation and amendment, and how coping stratagem develop, it is also necessary to address several relevant concepts of physiological and emotional reactivity to negatively perceived and experienced stimuli.

**Figure 2**

*Schema of Cues and Concepts of Emotion Change Prior to the Return of Retrograde Amnesia-Affected Autobiographical Memory.*



*Note.* Cognitive map theory (Tolman & Honzik, 1930) states that reflective markers or cues (or landmarks) indicate temporal locations of autobiographical memory. During trauma events with which individuals cannot physically, mentally or emotionally deal, the individual uses defense strategies or cascades of mechanisms to adapt until able to deal with the trauma. The landmarks then become landmines that, if cued, trigger a

defense mechanism (Raichle et al., 2001; Salmon & Squire, 2009; Stirling & Elliott, 2008).

### **Conceptual Foundation**

The conceptual foundations of the dissertation, expressed in models in lieu of theories, are those relevant models that have integrated physiological reactions to emotional stimuli, e.g., facial muscular change and eye blink frequency; affect regulation; and physiological reaction to trauma. This section discusses the relevance of these concepts and the rationale behind selecting them at a deeper contextual level than that provided in the previous chapter.

The Colavita visual dominance effect indicates the cognitive processing of an emotional incident where individuals respond more frequently to the observed component of an audiovisual stimulus (i.e., a memory stimulus) when presented with bimodal stimuli (Sinnott et al., 2007). The sympathetic autonomic nervous system, which originates in the hypothalamus, controls emotional or visual stimuli that trigger pupil dilation. Visual recognition triggers the reciprocating limbic system that connects to the visual pathways in the human cortex. As such, the visual stimulus could be preconsciously recognized in the optical pathway, but not reported via a motor response in eye movement or pupil dilation (Laeng et al., 2012; Privitera et al., 2008). Bradley et al. (2011) determined that eye dilation is not only associated with emotional arousal, but that the more negative the emotional valence, the smaller the pupil size becomes. Additionally, pupils are larger when individuals feel positive about their memories, either as feelings of strong recollection or sensations of future positive anticipation (Goldinger & Papesh, 2012). Pupil size can also indicate the individual's emotional state and the strength of the

emotions solicited at reconsolidation. Harrison et al. (2007) found that when study participants looked at sad faces with diminished pupil size, they judged them as more emotionally revolting than those with increased pupil size. These effects indicate the fact that image content for encoding memories impacts eye dilation, and thus memory recall and reconsolidation (see Figure 1). In addition to ocular dominance, considering the conditions that lead to eye blinking is a factor relevant to the phenomenon of interest in this dissertation, i.e., the cues that precede the return of memory.

Eye blink frequency, associated with “eye blink conditioning” (Christian & Thompson, 2003), is related to the performance of the amygdala. As the amygdala becomes inactive, perhaps due to the resolution of stress or traumatic experience, the level of cortisol decreases and slows the rate of conditioning response of eye blink. As the individual understands and reconciles a previous conflict of the self, the resolution permits reconsolidating a modified and more desirable autobiographical memory. An individual gradually abandons observable defensive strategies; as their cortisol levels decrease, so too the responsive eye blinks decrease. Conversely, elevated cortisol stimulation increases the activity of the amygdala, which presents as an increase in the rate of eye blink unconditioned response (Buss et al., 2004; Christian & Thompson, 2003; Schlosser et al., 2010). While humans typically blink between six and 10 times per minute, those experiencing flashback or other intrusive memories may decrease their eye blink rate to four to five blinks per minute due to the increased arousal and shifting attention span that accompany changes in emotion (Alius et al., 2015).

Eye movement disrupts episodic future thinking and reminiscence of past events, and traumatized individuals may also subconsciously use it as a defense strategy that

disrupts the mental spatial imagery of traumatic events before consolidation, according to De Vito et al., (2015). Bradley et al. (2011) determined that eye contact fixations were higher for negative or threatening content imagery than for neutral imagery, and the duration of contact fixation was lower for the same negative or threatening content imagery than for neutral symbolism or representations. Other, less obvious physiological variability also creates external signaling associated with emotional adaptability, e.g., that which occurs when one recollects a traumatic event.

Emotional events are more conducive to remembering than neutral events (Smeets et al., 2008). When cued to retrieval, emotional autobiographical memories tend to cause a higher release of cortisol that impacts both the basolateral amygdala and hippocampal regions of the brain. The regulation of these regions manages emotions and consolidation-reconsolidation memory functions (Christian & Thompson, 2003; Ehlers et al., 2002). Emotional autobiographical memories also influence heartrate variability, as expressed by blood flow that causes skin tone to fluctuate, galvanic skin response, muscle tension and fatigue, and respiration rates and patterns (Chou et al., 2014; Cohen et al., 1998; National Institute of Mental Health, 2016). In other terms, heartrate variability, or cardiac defense, is a physical and mental response. In cases of increasing or uncontrollable stress, anxiety and illness, and/or excessive physiological reactivity (De Oliveira Alvares et al., 2010), memory consolidation may be implemented where the amygdala produces intense stimulation that results in excessive fear or anxiety (Vila et al., 2007). Exposure to a traumatic event not only affects external physiological change. It also changes functional reactions to those incidents and the ability to form or recall memory.

The trauma hypothesis (Williams, 1969) suggests that for most trauma victims, exposure to a traumatic incident or event is a critical influence, but not the solely responsible stimulus in developing an overgeneralized autobiographical memory (Moore & Zoellner, 2007). Developing overgeneralization as a functional reaction at the time when an individual first encounters a traumatic incident, i.e., at primary exposure, teaches the victim how to circumvent uncomfortable or distressing emotions associated with the traumatic event. The individual uses overgeneralization to discontinue autobiographical memory retrieval before recall, or to reconsolidate and retrieve a particular event (Moore & Zoellner, 2007). Moore and Zoellner's (2007) review of the literature does support the premise that psychopathology factors, such as posttraumatic stress disorder and depression, appear to be more consistently associated with overgeneralization than mere secondary or indirect exposure. Traumatic experiences change an individual's physiology and functional reactions to those incidents, but it also affects their emotion regulation.

Affect-regulation hypothesis (Williams, 1969) states that conflicted or traumatized individuals employ evasion or avoidance schemes to regulate negative emotion. Depressed and posttraumatic stress disorder patients generate overgeneralizing as a tactic of avoidant emotion control procedures in response to prolonged negative events or unexpected traumatic incidents. According to Williams et al. (2007) affect regulation partly originates when memory retrieval begins to elicit undesired or emotionally unfathomable event-specific details. The individual abridges the search for understanding and balance at a generic event level so as to regulate aversive details and emotions (Bunnell & Greenhoot, 2012; Conway & Pleydell-Pearce, 2000). Reducing the negative emotion then allows the individual to underpin and fortify the remedy of this



stratagem for memory searches and modulated fear memory (De Oliveira Alvares et al., 2010).

Individuals who tend to react to negative stress stimuli with evasive or avoidant schemes are especially prone to exhibiting low specificity on autobiographical memory tests, particularly when the individual has a life experience narrative that includes previous aversive experiences. The Williams (1969) affect regulation model hypothesizes that avoidance is a strategic coping process; it is also feasible, however, that low specificity reflects a more automatic form of desensitization in response to stressful or traumatic life experiences.

A later affect-regulation hypothesis (Conway & Pleydell-Pearce, 2000; Williams et al., 2007) posits a dual-representation schema of traumatic memories. This schema suggests that knowledge from two different memory systems—one being the emotional aspects of the original situation that are not verbally accessible, and the second being verbally accessible parts of a contextual or declarative memory—are conjoined when an autobiographical memory is consolidated, or recalled and reconsolidated. Within this dual-representation model, an individual may represent separately, and/or remember selectively, the emotional and unemotional features of their traumatic autobiographical memory. Regulating affect in such manner may explain why posttraumatic stress patients possess nonverbal, affect-laden memory, why they frequently and unconsciously cue it, and consequently, why these memories intrude into their everyday cognition (Conway & Pleydell-Pearce, 2000).

Mennin et al. (2005) provided experiment support for how generalized anxiety disorder patients dysregulate their emotions. All the study's participants reported

heightened intensity of emotions, poor understanding of their feelings, greater negative reactivity to traumatic experiences, and decreased ability to self-regulate their negative emotions, consistent with the diagnostic criteria of the DSM-IV-TR (2011). Patient participants with only generalized anxiety, however, had more difficulty managing their reactions, but also more control over their affect-regulation than those diagnosed with posttraumatic stress (Beauchaine et al., 2007; Cole & Hall, 2008; Inzlicht et al., 2015).

Izard (2009) posits that psychology has neglected aspects of consciousness, including phenomenological issues of emotion presentation and control. He further suggests that society has consciously been using biased terms as a repository for all mental processes that are considered unreportable. The dual-representation model of affect regulation explains how an individual may represent separately and remember selectively the emotional and unemotional features of their traumatic autobiographical memory, and a conscious individual's external corporeal features and expressions may reflect alleviation or escalation of their emotional state associated with recall of a previous traumatic incident.

The facial feedback hypothesis (Darwin, 1872) states that a person's instinctual and muscular facial features, and their skin tone, can promulgate or stimulate emotional experiences. Darwin (1872) observed that unrestricted conscious individual expression intensifies outward signs of the emotional state, while the same attempts to repress all outward emotional signals diminishes that emotional state. James (1950) expanded the phenomenological premise of this self-feedback hypothesis, suggesting that awareness of one's instinctive, muscular, and skin tone changes when activated by a stimulus becomes itself an emotional reflection of the whole self. An individual's facial expressions impacts

not only others, as in the notion that a smile is contagious, but also the self, via conscious external input and subconscious internal feedback. The latter is significantly faster and more complex than any stimulation of visceral bodily organs (Adelmann & Zajonc, 1989; Hazem et al., 2017; Peters & Kashima, 2015; Strack et al., 1988; Veenstra et al., 2016).

McIntosh (1996) reevaluated the single facial feedback hypothesis, examining the cues an individual might give right before they remember the repressed traumatic memory, and offering the four facial feedback hypotheses. He reviewed the associated literature to examine whether facial actions correspond to emotions; facial movement modulates emotions; facial movements may initiate emotions; and if facial movements are necessary to develop emotions. McIntosh (1996) concluded that there is correlation in valence between facial patterns and affective states, and the majority of literature on the subject also supports the fact that facial action modulates ongoing emotions. Dimberg et al. (2000) indicated that rapidly evolving or responsive “affect programs” (p. 88) regulate initial facial responses, and that these responses are activated autonomously of conscious cognitive processes. The affect’s activation of unconscious physiological responses, independent of attention-arousal responses, is evidence that these facial reactions constitute an important process and impact emotional experience.

Strand et al. (2016) translated the facial feedback hypothesis into the emotion signaling theory, arguing that a set of evolutionary-based, emotion-specific “mental modules” (p. 1182) correspond to the facial expressions that signal them; these mental modules exist for identifying and interpreting basic emotional states. They concluded that a time-dependent effect based on age modulates the impact of an individual’s receptive language, the language associated with conveying an understanding of their affected self

as well as their environment. The findings of Strand et al. (2016) and Hazem et al. (2017) support Izard's (1990) earlier findings that through learning and experience, the individual assimilates both an emotional memory and a body memory, or a "motor image" (p. 495) of the representative behavior or emotion.

While the original facial feedback hypothesis focused almost exclusively on self-originating emotion, this dissertation considered the contributions of facial expressions and body language—movement and posture—to interpreting the rapid perception of dynamic emotions, or the invariants concurrent with or preceding the study participants' memory return. This consideration may furthermore rely more on the perceptions of an independent third-party observer, e.g., the therapist in the patient-therapist alliance, than on self-reported emotion changes (Dael et al., 2012; Martinez et al., 2015). Dael et al. (2012) and Martinez et al. (2016) indicated that both facial and body movements or changes carry significant emotional information. Perception of both face and body carries valence over a single modality, while facial variations typically carry more significance and reliability for correctly perceiving basic emotions for short spans of time (as little as 250-millisecond exposure) and great distances (unspecified). Both sets of researchers additionally contended that negative "basic" emotions—sadness, fear, anger, hate, etc.—are more often accurately recognized than positive ones—love, joy, etc.—using facial features or changes, than for body cues, including movement and posture (Dael et al., 2012; Hatfield et al., 2014). The original facial feedback hypothesis focused on emotion that an individual originates, and motivational priming also explains other physiological reflexes congruent with emotional stimuli.

## **Key Concepts**

Chapter 1 provided an abridged definition of these key concepts but additional clarification supported this section's discussion of studies related to recall and reconsolidation, i.e., the project's foci. This section describes the approaches through which researchers have studied these phenomena and assesses their strengths and weaknesses. The discussion also includes rationales for the concepts under investigation to describe what was known about them, what was controversial, and what remains to be studied.

## **Essential Phenomena**

This study investigates conceptualizations of retrieval and reconsolidation. During retrieval, a sensory region of the brain, including the right prefrontal cortex and, to a lesser extent, the left (Stirling & Elliott, 2008), represent each retrieval mode. The retrieval models each have a unique and distinguishable neuroimaging pattern. "Reading" these visual cues allows researchers and clinicians to process semantic memory, autobiographical memories, and other differing sensory information associated with the retrieval of memory (Willander et al., 2015). A key underlying mechanism for cue-dominance is related to the associated hierarchy processing of sensory information during consolidation and reconsolidation. Multiple methods of retrieving autobiographical memories through self-assessment grant therapists access to visual and auditory information in typical individuals (Willander et al., 2015). In persons with developmental, physiological, neurological, or sensory somatic and autonomic nervous system deficits, therapists may detect a differential retrieval pattern in dorsal-hippocampus activity. According to Maras et al. (2014), exposure to traumatic events that

cause stress can alter those brain functions associated with memory retrieval, cognition, and emotion. The hippocampus—as a control of memory associated with context and representation—processes sensory information and contributes to the success or failure of consolidating and recalling autobiographical memories. Additionally, the hippocampus' pathways to the amygdala enhance the emotional salience of these memories.

### **Differential Retrieval**

Differential retrieval of autobiographical memory is also associated with the intensity and duration of stress or trauma an individual experiences, and the subsequent integration of glucocorticoids and cortisol in the hippocampus, medial temporal regions, and precuneus during the initial encoding and consolidation, and also during the recall and retrieval of the traumatic memory (Maras et al., 2014; Nadel et al., 2007; Young et al., 2011). Using the multiple trace theory, Nadel et al. (2007) substantiated traumatic memory recall as a constructive process that requires “assembly” of representational components of a memory. They contended that retrieval of autobiographical memories, especially those associated with a traumatic event, consisted of retrieval from the neocortex solely, like a consolidated single memory stream, and also required involving the hippocampus and amygdala. The content of autobiographical memory could be altered during reconsolidation and by retrieving the previous, in other words original, memory (Nadel et al., 2007). In fact, repeating retrieval attempts a few weeks after the initial three times increased accurate and detailed recollection of traumatic events (Nadel et al., 2007).

Even though initially retrieved memories of a traumatic event may be fragmented, subsequent revision and reconstruction through retrieval and later reconsolidation

produced “episodic memory” (Nadel et al., 2007, p. 10), demonstrating how multimodal and multiple retrieval efforts increased accuracy and corrected errors. Therefore, the labile of autobiographical memories during reconsolidation might show activity across the brain, i.e., beyond to the hippocampus, compared to recent and multiple memory conditioning. Significantly, the infusion of hydrocortisone impacts retrieving autobiographical memory in a dose-dependent manner: moderate doses do not significantly impact retrieval times, but low and high doses during retrieval attempts do (Young et al., 2011; Lane et al., 2015). This dose-dependency indicates autobiographical memory retrieval impairment.

### **Memory Content**

Scholars cite the nature of the autobiographical memory content as a determining factor in the retrieval process’s hierarchy and effectiveness. Differential processing expectations—the pattern of recall in elaborate conditions—do not appear to diverge from those in unelaborated settings. Distinctive effects, however, have emerged in both elaborated and unelaborated settings. Yet such a hierarchy validates the fact that mechanisms that depict components of the memory and subsequently make one unable to retrieve them also play a significant role in the ‘distinctiveness effect’ of the autobiographical memory content (De Oliveira Alvares, et al. 2008; Migueles & García-Bajos, 2015; Waddill & McDaniel, 1998).

### **Pharmacological Involvement**

Studies have assessed the interactive effect of several prescribed pharmaceuticals on autobiographical memory retrieval. Papadatou-Pastou et al. (2012) determined that select serotonin reuptake inhibitors (SSRI), select noradrenaline reuptake inhibitors

(SNRI), though not effective antidepressants (Advokat et al., 2014; Preston et al., 2013) like reboxetine, increase neural activation in the frontal lobe and the right superior temporal gyrus during traumatic memories processing. These drugs have had a direct bearing on how an individual processes emotional information and autobiographical memory, including how they retrieve negative autobiographical memories (Papadatou-Pastou et al., 2012). Although the reboxetine increased blood flow to the frontal lobe, it had a reverse effect on purposeful retrieval of traumatic memories. In these and other clinical application studies, forethought of the infusion or consuming the pharmaceuticals aids the phenomenological understanding of invariant structural features of retrograde, amnesia-affected memory.

### **Truncated Searching**

Retrieval may employ elaborate truncated searching parameters to recollect the various somatosensory and contextual representation schemas associated with a single autobiographical memory retrieval attempt. While the sensory data may be stored at various hierarchical locations during consolidation, the temporal and spatial data associated with a memory, as well as this memory's representational context, are located throughout the neocortex, thereby producing workload for various cognitive functions. According to Eade et al. (2007) as the working self regulates access to long-term memory information in the SMS, it reduces memory specificity when its ability to solve problems becomes impaired. For resilient persons who have established effective strategic defenses, searching for specific representational components of an autobiographical memory requires managing inherent, targeted, specific and generic truncated retrieval attempts and their cues. In generative retrieval, memory becomes generic for dual- or



multi-tasking conditions; as the cascade of defense strategies manipulates traumatic autobiographic memory to make it more generic, problem solving becomes increasingly impaired (Eade et al., 2007).

Retrieval processes are pertinent to this study because retrieving specific memories—for example, memories of traumatic or distressing events—leads individuals to reactivate their associated negative emotions (Debeer et al., 2014). An individual may use a passive cascade defense to avoid experiencing negative associative emotions by truncating memory retrieval at the stage of overgeneralizing memory formation.

### **Reconsolidation**

Reconsolidation processes associated with traumatic memory are important to understand the invariants that correlate with participants' autobiographical memory that returns following therapeutic participation. To understand reconsolidation, it is necessary to understand two significant differences. First, as memory is first consolidated and later retrieved and reconsolidated, memory stabilization is at risk from “ecphory” (Sterling & Elliott, 2008, p.169), or the spontaneous memory-recovery process engaged when a specific, proximal cue interacts with data that the memory safeguards. Second, strengthened traumatic memory extinction may influence the associated remote memory that alters the memory subsequent to retrieval (Suzuki et al., 2004), and these in turn may self-identity, intentionality, incentives, impulses, expectations, and emotions during the sensitive period (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004).

Reconsolidation and consolidation are distinct processes and features (Alberini, 2005).

Consolidation requires several areas of the brain that reconsolidation's modulatory systems subsequently do not need. Before retrieval, reconsolidation typically restabilizes

memory by employing protein-synthesis; it is this process that modifies the memory (Sevenster et al., 2012).

Consolidation and reconsolidation also differ in their temporal dynamics. The former always produces a labile state in which memory can be disrupted; the latter, which constitutes reactivation, does not produce labile memory. Older or stronger memories appear to be less susceptible to inhibition and extinction. A condition that involves an intense reactivation is more destabilizing of the labile state (Alberini, 2005; Suzuki, 2004). Consolidation does appear to depend on reactivating the memory trace. The modifications that can occur over time stabilize the memory, although neurophysiological localization of the trace can change (Frankland et al., 2004; Einarsson & Nader, 2012). Therefore, scholars have argued that reconsolidation mediates memory updating by incorporating revisions of the retrieved memory, the lived experience at the time of reconsolidation, unconscious updates that include new or amended memory information, and the subsequent temporal and spatial context of when the reconsolidation process takes place (Alberini, 2005).

### **Consolidation Mechanisms**

The mechanisms for reconsolidating memory differ from those involved in consolidation. According to Lee (2009), the active process of reconsolidation engages particular mechanisms that consolidation does not require. Two particular elements of isolated traumatic memories vulnerable to  $\beta$ -adrenergic receptor blockade (Björkstrand et al., 2015) arise in reconsolidation but not consolidation, and both contextual fear and inhibitory avoidance are dissociable (Sevenster et al., 2012; Taubenfeld et al., 2001). Not all consolidated and later retrieved memories, however, are reconsolidated. Not

consolidated are boundary conditions that establish reconsolidation as unambiguous from consolidation. The principal example used in the literature is that of reactivation-dependent amnesia (Lee, 2009). Examples of these boundaries include memory strength and the temporal nature of traumatic memory. In inhibitory avoidance and fear conditioning, temperate (14-day-old) memories typically did not substantiate reconsolidation, while earlier (1–13-day-old) memories did (Eisenberg & Dudai, 2004). It is possible that the majority of traumatic memories undergo reconsolidation regardless of their age and strength, but previous studies on reconsolidation boundary conditions demonstrate that patients typically do not effectively reactivate memory conditions (Lee, 2009).

### **Memory Conditioning**

As previously indicated, a cued recall of an original retrieved memory initiates reconsolidation. This process itself consists of a memory trace that later triggers a memory, and which is associated with associative representative memory. In some scholars' fundamental perspectives, once a traumatic memory is retrieved, the individual is able to reinforce, alter, reconsolidate, inhibit, or extinguish it (Sevenster et al., 2012; Suzuki et al., 2004). Experimental extinction of traumatic memory does not involve actual absence or forgetting of the original memory trace. Rather, it reflects the presence of the previously learned conditioned stimulus-unconditioned stimulus association, and the subsequent conditioned stimulus-no unconditioned stimulus association that forms to impede the conditioned response. As a result, memory retrieval may prompt two dissociable and opposite responses: reconsolidation or extinction (Suzuki et al., 2004). Where brief exposure to the conditioned stimulus activates a second cascade of memory

consolidation, prolonged exposure to the conditioned stimulus hastens forming a new, abridged, or altered memory that competes with the original memory and may result in extinction. According to Suzuki et al. (2004), the prevailing and dominant behaviors that result from the competing processes are partly determined by the duration of the conditioned stimulation exposure, modulation of the medial temporal lobe, and mediation of the amygdala or hippocampus. As discussed above, this study refers to this phenomenon as the “sensitive period.”

### **Effects of Expectation**

Lane et al. (2015) and Pedreira et al. (2004) perceive the difference between reconsolidation and extinction of traumatic memory in situational terms, i.e., as the result of the conflict between what the self expects and the actuality of a traumatizing experience. In contextual memory experiments, researchers provided unreinforced retrieval cascades to learning a conditioned stimulus; it acted like a guided modification toward reconsolidation or extinction, and it was dependent upon the duration of exposure to a stimulus. The memory retrieved by unreinforced and conditioned stimulus-re-exposure emerged intact and consolidated when assessed prior to conditioned stimulus offset, and regardless of the duration of the stimulus. For Lane et al. (2015) and Pedreira et al. (2004), this result suggested that neither process was concomitant with conditioned stimulus re-exposure. Conversely, Sevenster et al. (2012) suggested that traumatic memory does not take place when memory retrieval offers nothing important to learn; when unheeded, the above mentioned boundary conditions for memory reconsolidation and extinction the traumatic memory to form a fixed state.

### **Use of Defense Cascade and Defense Mechanisms**

Defense mechanisms are the conscious or unconscious personalized strategies used by the self to circumvent, deflect, or avoid perceived threats or challenges that originate externally via the other or the world, or from the individual's id or superego (Freud, 1962, 1966; Prochaska & Norcross, 2007; Trull, 2005). Defense strategies are the lowest level of the conscious coping on the continuum of defense mechanisms (Keener, 2010). Several forms of these strategies include obsessive behaviors and using alcohol and narcotic substances that “numb the senses,” or mitigate the pressure or memory of traumatic or distressing events. Finally, ‘defense cascade’ refers to the theoretical continuum of defense mechanisms. The cascade is a series of defense responses that intensify or escalate depending on proximity to risk. There are proofs for this cascade in the evolutionary biology, neurophenomenology, and psychophysiology sciences (Schauer & Elbert, 2010).

There are well-documented correlations between implementing defense mechanisms and trauma-coping strategies (Aldao et al., 2015; Rice & Hoffman, 2015). The literature conversely indicates a relation between flexible emotion regulation and physiological change (Aldao et al., 2015). The literature, however, does not explain that as the individual deals with the trauma and reverses the cascade of mechanisms (Van der Kolk, 2014) related to the landmarks or former landmines (Tolman, 1951) and altered memory traces (Barrett & Sherry, 2012; Breedlove & Watson, 2013; Carlson, 2010) that indicate memory reconsolidation and recall, this individual realizes the jump between emotional state associated with the recall of the former amnesiac memory and the associated physiological changes.

As the trauma patient transitions from an ineffective mechanism to a more demanding manner of coping, the cascade both increases in complexity and extends the potential for repression and amnesia (Freud, 1930; Freud, 1966). As the cascade decreases, stops, and reverses itself, the patient becomes preconsciously willing to deal with the trauma, and the self regulates the memory available for recall (Freud, 1930; Van der Kolk & Fisler, 1995).

### **Summary/Conclusion**

Chapter 2 presented a literature review based on the principal keywords of this study (See Table 1 for databases searched). This chapter also discussed the concepts behind the problem and purpose statements that guided this study. The chapter also discussed the significance of the research—that it provided relief to patients and enhanced knowledge to practicing clinicians—in the hopes of closing or diminishing the gaps in the literature that Chapter 1 identified. Chapter 2 also included an extensive review of both the theoretical and conceptual foundations for this study.

Bockelman et al. (2013) described conceptual, epistemological, and methodological gaps that repeatedly appear in phenomenology or neurophenomenology clinical literature, which indicates that only a minority of psychology and health service providers are knowledgeable about the lived experience of survivors of traumatizing events and episodes (Dallam, 2010; Kondora, 1995). Additionally, the “standard science” (Strle, 2013, p. 379), for example the status quo of experiential expertise on phenomenology or the study of consciousness, has yet to develop a defined and strict empirical methodology that is open to intersubjective verification. Another lack is a strategy that explores the structure of preconscious experience (van de Laar, 2008), and

researchers would do well to determine the phenomenon invariants of the experience. Adhering to strict phenomenological methods might turn the invariants of neurological remembering into practical or concrete representations (Van de Laar, 2008). The next chapter discusses how transcendental phenomenology and neurophenomenology both employ a practical methodology to solve the difficult problem of defining (pre)consciousness and experiences. Similarly, this study defined (pre)consciousness and experiences by exploring the invariant structures and features of a particular variant.

### Chapter 3: Research Method

The purpose of this study was to improve clinicians' understanding of patients' potential invariant structural features as they recover their traumatic autobiographical memories while in treatment for traumatic amnesia. The research questions relate to the lived experience of the unfolding experiential process leading to the recall and reconsolidation of detailed memory of a past traumatic event. A research question also included the participant's descriptions of their lived experiences of recovery from retrograde amnesia due to a previous emotionally traumatizing event, and what, if any, are their conscious or preconscious emotional experiences before they remembered traumatic event details.

This chapter discusses the phenomenological research design as well as the rationale behind it. I examined my role and how I selected participants and instrumentation methods—including those I developed—and briefly discuss the pilot study requirements and rationale. The chapter also carefully addresses the processes of data-collection and analysis. The final section considers the study's ethical and the data-trustworthiness concerns.

#### **Research Design and Rationale**

My study was framed by the following questions. What are clinical amnesia patients' lived experiences of the unfolding experiential process that leads to them remembering details of past traumatic events? What are patients in therapeutic intervention or treatment's descriptions and lived experiences of their recoveries from retrograde amnesia due to previous emotional trauma? What, if any, are the amnesia patients' conscious or preconscious emotional experiences that preceded those



remembering traumatizing details, and relatedly, what catalyzing events precipitated their amnesia of such details?

More concisely, for patients recovering from retrograde amnesia due to emotionally traumatizing events, what invariant emotional and behavioral conscious states, if any, preceded their transformational remembering of some or all of the traumatizing event details? Additionally, what patient behaviors and descriptions of experience, if any, does the treating clinician(s) register as the patient undergoes transformational remembering?

This study was unique in that it addresses an under-researched area of memory processes and neuropsychology together (Goldinger & Papesh, 2012). The positive social changes this study may propose are much-needed insights into possible processes by which psychotherapists could rapidly and accurately identify the return of a patient's autobiographical memory, as long as it had been lost due to nonphysiological trauma, in other words, psychological or emotional trauma. To achieve these ends, the study employed a qualitative phenomenological approach.

Qualitative research has traditionally sought to address problems or issues that span the limits of human and social sciences. The hallmark of qualitative research was the deep, intentional involvement of ethos and culture, gender, and ostracized or marginalized persons. Such matters are intensely personal, practical, and laden with emotion. Phenomenology, as a tradition, has sought to elucidate how people comprehend an individual phenomenon, or what Mishara referred to as the "consciousness of perception" (1990, p. 30). Husserl first advanced the notion that the outside world's perspective cannot understand an individual's experience/consciousness (Husserl, 1975;

Husserl & Moran, 2002; Yaw, 2015; Zahavi, 2003), but the principle of “noetic-noematic correlation” (Rajan, 1991) posits that one way of developing an understanding of a phenomenon was through how people experience it. Others’ lived experiences allow one to realize and appreciate better the uniqueness of the experience of being-in-the-world (Englander, 2012). This phenomenological process enables researchers to better understand fundamental features and structures of how humans perceive their beings (Arcaya, 1989; Davidsen, 2013; Heidegger et al., 2013). Phenomenological studies enhance understanding of individual experiences, rather than provide a causal explanation of them. Specifically, existential psychology and corresponding phenomenological methodologies provide rich descriptions and full interpretations that accurately describe what it means for an individual to be in their particular world (Mølbak, 2007).

The phenomenological research approach presents several benefits for this study over other prominent, qualitative, and quantitative research methodologies. According to Arcaya (1989) and Creswell (2013), phenomenological research attempts to suspend judgment about what was real until presuppositions become supported by empirical methodology. This study, therefore, employed a qualitative phenomenological focus. It explored and attempted to understand the invariants that correlate with participants’ autobiographical memory returning following participation in a therapeutic environment. To provide better validation of the participants’ experiences, I set aside personal experiences via epoché (bracketing; LeVasseur, 2003), to render my descriptions of phenomena more likely to be unbiased and nonjudgmental.

I collected data in a natural setting (Creswell, 2013), for it was more conducive to a relaxed atmosphere in which to conduct phenomenological interviews and observations. This setting contributed to the researcher-participant alliance, helping to reduce the potential for traumatic stress relapse on the part of the participant, and contributing significantly to the free-flow of discovery. The interviews served the particular purpose of exploring and gathering experiential narrative material, anecdotes, or stories that served as a data resource for developing profound understandings of a human phenomenon. I employed the technique of transcendental-phenomenological reduction (Moustakas, 1994) through extensive use of semistructured interviewing techniques (Ivey et al., 2014; Roulston, 2014). Finally, imaginative variation led to deducing the conceptual and fundamental essence of the reported experiences (Moustakas, 1994).

This study was significant because it aimed to discover the meaning of the phenomenon of remembering trauma event details in the patient's preconscious as related to neurophysiological and reflective autonomic changes. A qualitative phenomenological focus and methodology, informed by neuropsychology and neurophenomenology—natural scientific fields that study remembering as isolated processes (Bockelman et al., 2013; Mølbak, 2012; Strle, 2013)—, inform the project.

### **Role of the Researcher**

There are distinct differences in the roles of observer or participant in qualitative and quantitative research (Creswell, 2014). The qualitative researcher is typically an “instrument of data collection” (Creswell, 2014, p. 185; Denzin & Lincoln, 2011, p. 115); they collect and filter data, instead of using stand-alone and autonomous instruments. Part of the qualitative researcher's role is to describe assumptions, bias, expectations, and

experiences (Creswell, 2013; Greenbank, 2003; Sanjari et al., 2014). The researcher also defines their role as emic (insider) or etic (outsider) to reveal their motives and desires for conducting the research.

In this study, I was implicated and invested because of enduring a traumatizing experience at the age of 15 years. My body was brutally assaulted by an invasive meningococcal infection that unexpectedly hit 45% of my hometown's youth. Meningococcal infection, commonly referred to as meningitis, is a severe and life-threatening swelling of the gradations of tissue that protect the meninges and fluid-filled spaces between them, and it hospitalized me for 3 months. Due to the physiological or emotional trauma, or both, I remember only initially becoming sick while at school, and then the drive home following hospitalization and recovery, 3 months later. I do not recall what occurred in between.

Meningitis does typically impact cognitive and other neurological performances, but I recovered without suffering any neurological detriments to the brain, and therefore, my memory should have remained intact. After undergoing psychotherapy for losing my memory of the events during hospitalization, I recovered most memories of the traumatizing experience, including the pain from repetitive lumbar punctures and continuous relocation of intravenous injection sites to various extremities; chronic and extreme headaches and vomiting; and the inability to receive human contact or support from my parents. I cannot, however, remember the experience of how and when I actually recuperated his memory. Furthermore, I cannot help but wonder at what point during the therapy the therapist realized that I was reliving my trauma. Having personally experienced the phenomenon under investigation, I implemented procedures—including

semistructured interviews and member checking to ensure that he did not over-identify with participants or exhibit bias.

I asked intentionally open-ended questions and obtained additional clarification through nonobtrusive probing (Roulston, 2014), perceiving my role in the study as a “gatekeeper” (Creswell, 2013) or “moderator” (Patton, 2015). As discussed in Chapter 1, I took extensive precautions to prevent psychological or emotional harm to participants who have previously experienced autobiographical amnesia comorbid with direct or indirect exposure to traumatic events. As a gatekeeper, I needed to be able to identify the participant’s potential to readdress their trauma before trauma memory recall happened and to change the flow or safely terminate the interview. I also periodically provided the participants the opportunity to withdraw from this study, e.g., during the survey, data-collecting, and debriefing processes, and possible follow-up.

The researcher cannot overstate his role as an interpreter. Although quantitative researchers may hold qualitative researchers’ interpretation of interviewees’ dialogue as problematic (Creswell, 2013; Patton, 2015), the distinctive role of researcher as an interpreter was a pivotal tradition in phenomenology. This role was especially crucial in research related to memory and trauma exposure (Brewin, 2007). Phenomenological researchers assemble their classifications, patterns, and premises or themes “from the bottom up,” i.e., from the words of the subjects first, and by using the inductive process of data analysis, i.e., by consolidating the interview data until a comprehensive set of themes develops.

With regard to interaction and reflexivity (Creswell, 2013; Patton, 2015), the researcher did not have any personal or professional relationships with the participants;

he did not maintain a supervisory or instructor relationship, i.e. have hierarchical supremacy or power over participants, any recruitment site staff, or any healthcare professionals associated with the prospective research sites. Prior to reviewing any *Informed Consent* and *Study Surveys* or interviewing any participants, the researcher self-evaluated for any potential biases arising from culture, gender, race, confirmation, in-group, observational-selection, status-quo, negativity, bandwagon-effect, projection, transference or countertransference, or anchoring effect. This vigilance allowed the study to remain cognizant of its research goal, priorities, and rationale. The researcher maintained an etic and professional relationship with all persons encountered during the study. If conflicts arise related to personal or professional biases, or power relationships outside of the process data-collection, the researcher conferred with his dissertation committee and Walden University's Institutional Review Board (IRB) for mediation. If biases or conflicts arise during data collection, he discussed them openly with the participants, providing them with the opportunity to terminate the process.

If groups of participants originate from the same locality or source, the study handled possible organizational/agency conflicts outside of the data collection process. If further data collection was halted due to conflicts of interest between the researcher and the present or previous organization/agency personnel, completed interviews were considered as part of the research study, and another interview site may make up the reduced selection pool size. The researcher may dismiss completed interviews if he determines that the conflicts of interest created biases or tainted data, or diminished the trustworthiness of the collected data in other ways.

To offset financial sacrifice and demonstrate gratitude for their participation, the study offered and provide monetary incentives to eligible and selected participants under the following conditions: the amount of appreciation given to eligible and randomly selected participants was the same, regardless of their role as clinician or patient.

Offering too much or too little money could create distrust of the researcher or feelings of disrespect on the part of the participants, diminishing any attempts to build a robust researcher-participant alliance (Brew & Kottler, 2008; Corbie-Smith et al., 2002; Grady, 2005; Ivey et al., 2014). Therefore, both clinician and patient subjects received \$100. This written incentive appeared on the *Informed Consent* and *Study Survey* for all former patient and attending psychologists, counselors, social workers, etc. who were eligible and randomly selected to participate in the study. The literature indicates that salaries bear little impact on recruiting for the selection pool in terms of both heterogeneity and occupation. The use of salary as a basis for compensation could be perceived as an injustice of under-compensating (Bigorra & Banos, 1990; Corbie-Smith et al., 2002; Friedman et al., 2015; Grady, 2005).

### **Methodology**

This section included the rationales behind selecting participants, and developing and using the study's instrumentation, formulae for a pilot study, procedures for recruiting and selecting participants, and collecting data. The discussion also includes the data analysis plan as well as several aspects of the study's trustworthiness.

The researcher was the principal instrument (Creswell, 2014). The interview protocol (Appendix A) therefore was not delivered to study participants; rather, the researcher conducted interviews and made careful observations of the participants during

the study. In the same way, this qualitative study used multiple data sources. When permitted by the participant, the researcher audio recorded the interviews for data transcription and to ensure the accuracy of the data (Englander, 2012; Henry & Fetters, 2012).

As the purpose of this study was to explore and make visible the meaning of the previously described phenomena, what participants *mean* was as critical as what they say. Therefore, interviews followed a prescribed protocol, which aided the researcher to ensure the trustworthiness of the study results. The researcher also implemented an interview methodology caveat to account for impromptu deviations, facilitating a better understanding of participant meanings. A qualitative methodology upholds the purpose of this study also because the initial research plan was not fixed; the research questions, interview protocols, and data collection records may change as the study obtains its participant selection pool and data (Creswell, 2014). To elucidate how a possible research problem emerges, the researcher objectively conducted interviews and made observations, and throughout the duration of the study, the data was periodically examined.

### **Participant Selection Logic**

The number of random purposeful, eligible clinician and patient participants selected was sufficient to support the goals of this phenomenological study (Creswell, 2014). This number should provide saturation quickly and therefore ensure a relatively short data collection period (Creswell, 2014). Based on the expected amount of information as typically obtained in qualitative research (Creswell, 2013; Patton, 2015), a selection pool size of six to 12 eligible participants should suffice to meet the goals of



this study. Although Englander (2012) recommends a minimum of three participants for a phenomenological study participant pool, he also affirms that a maximum number of participants was unnecessary, as the results of phenomenology are often deep and seek the meaning of a phenomenon, rather than how many people had experienced this phenomenon. The researcher intends to increase the selection pool size by 10% in case some participants drop out or refuse to participate (Martinez-Mesa et al., 2016). This increase indicates a selection pool size of seven to 12 participants to meet the research criterion. The sample selection pool included both patient and clinician participants, with an intended ratio of one clinician for every four patients.

The selection pool of patient participants consisted of adult—defined for the purposes of this study as anyone between the ages of 18 and 55 years old—patients, or former adult patients, who previously endured traumatic amnesia comorbid with posttraumatic stress or an anxiety disorder; who recollect all or partial aspects of their previous traumatic event(s); and who were motivated to seek, enter, and complete therapy for their memory and anxiety-related issues. These are the study’s “patient participants.”

The other category of participants are clinicians who have had the experience of observing the phenomenon of a former patient’s autobiographical memory return (Creswell, 2013). These participants comprise licensed therapists, psychologists, psychiatrists, counselors, and social workers who provide therapeutic interventions, treatments, or services, and who do not qualify as patient participants. The researcher conducted interviews and observations of clinicians who themselves were observers of a patient participants, which provided additional insight, or an insider’s perspective of the

principal study subjects. For this reason, the researcher did not perform interviews and observations of the clinicians concurrently with those of their patients.

The study located and selected participants who reported experiencing the previously defined memory phenomenon within the last three years (Table 2), but who have *not* previously incurred physiological detriments or deficits to their brain.

**Table 2***Participant (Patient) Selection Criteria*

Criteria	Descriptor	Qualifies individual	Disqualifies individual	Exemptions considered
Age	Adult between the ages of 18 and 55 years old	*		
Gender	(see notes 1 and 3)			*
Ethnicity	(see notes 2 and 3)			*
Education	Regardless of level or method(s) of instruction	*		
Language	English Reader/Speaker	*		
Occupation	(see Note 3)			*
Experienced TE comorbid with AM amnesia	(see Note 4)	*		
Diagnosed TBI	(see notes 3 and 6)		*	*
Diagnosed neurological or physiological deficit(s) contributing to the formation of amnesia	(see notes 5 and 6)		*	
Current prescribed or illicit drug use	(see note 5)			*

*Note.* For demographic qualification of gender, the study employed anatomical constituency and considered the following categories: “Male,” “Female,” “Other,” and “Decline to State.” For demographic qualification of ethnicity, the study considered the following categories: “White,” “Black or African American,” “Hispanic,” “Asian,” “Other,” and “Decline to State.”

<sup>a</sup> Not allowed to participate were children, minors, pregnant women, participants of human in-vitro fertilization, prisoners, military persons, ethnic minorities, refugees, students in hierarchical organizations, and individuals who were terminally ill, physically

or intellectually challenged, institutionalized, persons over the age of 55, visually or hearing impaired, or economically or educationally disabled (Shivayogi, 2013). Generally not excluded were physically disabled individuals unless they also qualified as “vulnerable.”

<sup>b</sup> The individual must have experienced a traumatic experience in the last 36 months, but no sooner than 14 hours before interview, from which they suffered traumatic, autobiographical memory retrograde amnesia, and for which they sought the help of a clinician, such as a therapist, counselor, and similar healthcare providers.

<sup>c</sup> Antidepressants, antihistamines, anti-anxiety medications, muscle relaxants, tranquilizers, sleeping pills, and pain medications known to impact the memory or cause memory loss (Advokat et al., 2014; Preston et al., 2013).

<sup>d</sup> Alzheimer’s Disease (AD); Autobiographical Memory (AM); Brain Infections (i.e. Lyme disease) or Tumors (BIT); Frontotemporal Dementia (FTD); Huntington’s Chorea (HD); Parkinson’s Disease (PD); Transient Ischemic Attack (TIA); Traumatic Event (TE); Traumatic Brain Injury (TBI); Wernicke-Korsakoff syndrome (WKS) (Salmon & Squire, 2009).

Clinicians may be current practitioners for the study’s patient-participants or may have treated a patient with a similar condition within the last three years. The study clinicians and patients were never be aware of any participant whose part of their respective patient-therapist relationship was previously unless obtaining appropriate consent first. See Table 3 for the selection criteria for both patient and clinician participants.

**Table 3***Participant (Clinician) Selection Criteria*

Criteria	Descriptor	Qualifies individual	Disqualifies individual	Exemptions considered
Age	Adult between the ages of 18 and 55 years old	*		
Gender	(see notes 1 and 3)			*
Ethnicity	(see notes 2 and 3)			*
Education	Regardless of level or method(s) of instruction	*		
Language	English Reader/Speaker	*		
Occupation	(see note 3)			*
Licensed therapist, psychologist, psychiatrist, counselor, social worker		*		
Treated a patient who had experienced TE comorbid with AM amnesia within the last three (3) years		*		*
Not a member of a vulnerable population	(see notes 3 and 5)		*	*
Diagnosed neurological or physiological deficit(s) contributing to poor memory or reliance on notes or records	(see notes 4 and 5)			*
Currently taking prescribed or illicit drugs	(see Note 4)			*

*Note.* For demographic qualification of gender, the study employed anatomical constituency and considered the following categories: “Male,” “Female,” “Other,” and “Decline to State.” For demographic qualification of ethnicity, the study considered the

following categories: “White,” “Black or African American,” “Hispanic,” “Asian,” “Other,” and “Decline to State.”

<sup>a</sup> Not allowed to participate were children, minors, pregnant women, participants of human in-vitro fertilization, prisoners, military persons, ethnic minorities, refugees, students in hierarchical organizations, and individuals who were terminally ill, physically or intellectually challenged, institutionalized, persons over the age of 55, visually or hearing impaired, or economically or educationally disabled (Shivayogi, 2013). Generally not excluded were physically disabled individuals unless they also qualified as “vulnerable.”

<sup>b</sup> Antidepressants, antihistamines, anti-anxiety medications, muscle relaxants, tranquilizers, sleeping pills, and pain medications known to impact the memory or cause memory loss (Advokat et al., 2014; Preston et al., 2013).

<sup>c</sup> Alzheimer’s Disease (AD); Autobiographical Memory (AM); Brain Infections (i.e. Lyme disease) or Tumors (BIT); Frontotemporal Dementia (FTD); Huntington’s Chorea (HD); Parkinson’s Disease (PD); Transient Ischemic Attack (TIA); Traumatic Event (TE); Traumatic Brain Injury (TBI); Wernicke-Korsakoff syndrome (WKS) (Salmon & Squire, 2009).

The study may restrict selection based on gender, cultural background, or socioeconomic status if the participant was deemed to be in a vulnerable status category. The physically disabled may participate in this study because it focuses principally on those individuals who experienced amnesia due to emotional trauma.

The researcher transmitted by mail or electronically an *Informed Consent* form, and after it was signed and returned, a *Study Survey* to eligible participants. Participant

solicitation followed successful execution of the *Request to Access Facilities and Conduct Research Form*, and receipt of permission of the director, staff, and healthcare providers at each recruitment research site via *Letters of Cooperation*, after conferring with the attending clinicians about the study's controls for privacy, confidentiality, and consent. If denied request for access, the researcher determined another researcher-participant interview location conducive to clinical interviews. The *Informed Consent* and *Study Survey* solicits participant demographic data, contact information, and several anodyne, "yes or no," or "fill-in-the-blank" questions that relate to qualifying for the study. Using these completed forms, the researcher contacted applicants, thanked them for their willingness to participate, confirmed their consent and details from the *Informed Consent* and *Study Survey*, answered any questions about the study and himself, and established a tentative interview schedule. If the prospective participant expressed a desire that their current/former attending psychologists, counselors, social workers, etc. was available for debriefing, or as a safeguard in case of therapeutic remissions, the research asked the participant to make the first contact, and follow up by communicating with them after receiving signed consent from the patient participant. The researcher did not know the number or personal contact information for those solicited participants who do not return their *Informed Consent* and *Study Survey* form.

Participant submitted their *Informed Consent* and *Study Survey* via mail or electronic mail. If the prospective participant requested paper copies of the research study material, they completed, signed, dated, and returned paper copies of the *Informed Consent* and the *Study Survey* directly to the researcher via postal mail in a provided self-addressed and stamped envelope. If the prospective participant requested electronic

copies of the study material, they completed, electronically signed, dated, and returned electronic copies of the *Informed Consent* and the *Study Survey* directly to the researcher via an email address specifically created for this study. Participants also were instructed to electronically indicate their consent to participate by attaching a scanned handwritten signature or using an e-signature service such as Adobe's EchoSign; typing their name with an accompanying check box and statement noting an intent to affix a legal signature—e.g., “By typing my name below, I am electronically signing this consent form;”—or signing with a stylus in an electronic document.

The researcher requested four American Psychological Association (APA) division facility administrators to publicize for the proposed research by posting flyers throughout their facilities. The researcher also requested these administrators to forward the *Informed Consent* and *Study Survey* to their clinicians and current and former patients. As a reminder, these documents specify that the individual should return the forms to the researcher only, and not to administrators.

### **Instrumentation**

Five tentative primary data sources are available for the purposes of this study, and the researcher used them on an affirmative informed-consent basis. Secondary data sources, such as patient records and Freedom of Information Act material are not useful for this study due to HIPPA rules of access, the additional time the researcher would have devoted to them, and possible costs for access.

The researcher conducted semi-structured interviews with attending clinicians working at participating study sites and performing or having performed psychotherapy for adult patients with retrograde amnesia due to a traumatizing event, or those who



recently recovered from the same. These interviews did not solicit or reveal personally identifying information or data associated with patient confidentiality, by either the clinician participant or the researcher, unless the patient provides written consent. That is, the researcher allowed a mental healthcare provider to divulge a specific patient's treatment history unless the researcher was able to provide a signed *Statement of Informed Consent* form indicating the patient's permission.

The researcher conducted semi-structured interviews with the consenting adult patients. He asked them to identify their attending psychologists, counselors, social workers, etc. on the *Informed Consent* and *Study Survey* form. As part of the informed consent process, the researcher informed the patients of the purpose for interviewing their healthcare worker and the mechanisms for ensuring confidentiality, and confirmed his permission to discuss their treatment history. In cases that required it, he familiarized these gatekeepers and other stakeholders with the purpose of this study prior to starting an interview.

The researcher created a minimum of five (Baker & Edwards, 2012) open-ended, non-threatening research questions aimed at gathering data that may provide qualitative understanding and increase the knowledgebase associated with the research questions and purpose statement. He anticipates using a sensitizing, concept-illumination interview format, with feeling questions (Patton, 2015), to allow participants to express their affective and behavioral experiences free from research values, opinions, and judgments. The researcher desires participants to openly elaborate on their behaviors and experiences, beliefs and values, knowledge, and spatial and temporal sensations.

A third data source was the researcher's observations of the participants' behavioral changes, e.g., their body posture and facial expressions, during interviews. The fourth data source are observations of the participants' behavioral changes and experiential self-reports by those attending psychologists, counselors, social workers, etc. who work at the participating study sites, and who are conducting or have conducted psychotherapy for adult patients with retrograde amnesia, or patients who had recently recovered from retrograde amnesia.

Audio recordings of interview sessions, when the participant approves and consents, were as inconspicuous and non-intrusive as possible in order to preserve the unobtrusive study setting. The researcher intended to record interviews with a Tascam Digital Stereo Audio Recorder (item number DR-05X) and a 4GB Toshiba SDHC memory card (item number SD-K04G). Where necessary, recordings via a JVC Quad-Proof HD camcorder (item number GZ-R70BU) with video function disabled functioned as a back-up. The same memory card served both recording devices. Only one memory card was used to record each interview, however, for purposes of confidentiality. The ethical concerns section of this dissertation further discusses safeguarding procedures.

The Rivermead Posttraumatic Amnesia Protocol (RPAP) (Rapp et al., 2013) was developed to reflect routine clinical practices that clinicians may use on a day-to-day basis without difficulty. Most clinicians who regularly assess patients with posttraumatic amnesia use a similar kind of process (King et al., 1997). The Autobiographical Memory Interview (AMI) (Kopelman et al., 2008) is a structured interview that asks patients to provide detailed information concerning three periods of their lives, namely childhood, early adulthood, and late life. It is important to note that while the RPAP (Rapp et al.,

2013) and AMI (Kopelman, Wilson, Baddeley, & Thames Valley Test Company, 2008) are reliable instruments for assessing an individual's recall capability and the extent of their autobiographical memory retention, they do not contribute to an understanding of potential behavioral or emotional features that may also demonstrate the extinction of the previous amnesia phenomenon, and the retrieval of previously unconscious autobiographical memories associated with the catalyzing traumatic incident or event. For this reason, the researcher generated instruments for this study.

*Informed Consent and Study Survey (Former Patient)*: served to indicate the patient's eligibility for this study as well as to gather the individual's demographic data. The form has three sections. The first part provides a consent form that includes an invitation, information on the background and nature of the study, the incentive notice, a privacy statement, information on contact and the interview question, and space for consent signatures. The second section includes instructions for completing and returning the survey to the researcher. The third section was the patient-eligibility survey, which itself has two parts. The first part asks the individual to indicate their demographic information. The second part solicits data related to "vulnerable person" designation, the study eligibility criteria, and their present recall of their experience regarding the details of their previous traumatic event.

The majority of the survey questions are closed-ended, with several requiring a short-answer. The form also contains two proviso statements. The first requests the patient participant to give their consent for the researcher to contact their therapist or other healthcare worker to discuss the participant's readiness to take part in the study. The second proviso statement addresses consenting patients who would like to participate

in the study but have not completed their therapy or had prematurely stopped participating. Under these circumstances, the researcher referred to the attending clinician for determining the patient's readiness to participate, thereby reducing the potential for risk to the patient, participant dropouts, and conflict of interest. Under both proviso statements, the patient must initial their consent, advise their appropriate therapist/healthcare worker, and obtain this worker's permission to collaborate with the researcher before participant consideration may continue.

*Informed Consent and Study Survey (Clinician):* This study-preparation survey served to indicate the clinician's eligibility for this study and to gather their demographic data. It determines the clinician's eligibility for the study, whether they are a 'vulnerable person,' and their present ability to recall the circumstances and their experience of specific patient sessions when the patient remembered the details of a previous traumatic event for which they had developed amnesia.

*Statement of Informed Consent (Former Patient):* This form contains the appropriate informed consent information (Endicott, 2016a; Walden University, 2014) for those patient participants who previously completed and returned their *Informed Consent and Study Survey (Former Patient)* whom the researcher deemed eligible for the study and who intend to participate. The researcher read the form aloud to the patient participant before presenting instructions for the study interview. The form contains a proviso statement that asks the patient participant if they give their consent for the researcher to contact and interview their therapist or healthcare worker about their experiences recalling the experiences that caused previous retrograde amnesia. The researcher gave a copy of the completed statement to the patient.

The *Statement of Informed Consent (Clinician)* contains the appropriate informed consent information (Endicott, 2016a; Walden University, 2014) for clinician participants who previously completed and returned their *Informed Consent* and *Study Survey (Clinician)* form, and whom the Researcher deemed eligible for the study per the criteria, and who continue to intend to participate in the study. Although there are variations in the content of statements in this form, the form was identical to that of the clinician participant version.

The *Qualitative Interview Protocol (Former Patient)* (Appendix A): a semistructured interview protocol for patients. It guides rather than directs the flow of the interview. The format consists of seven chronological questions that allow the interviewer to ask follow-up probing or iterative questions in response to the interviewee's detailed descriptive responses (Roulston, 2014). The protocol was asymmetrically structured, and the questions worded to allow the study's non-clinical participant to select their terms in response. The protocol also includes written prompts that the interviewer may use to ask iterative questions, should the participant provide a response that appears contradictory or requires deeper elaboration. The researcher designed the iterative questions to be subtle and non-threatening to the participant.

The structure of the protocol solicited data that the researcher analyzed via the inductive analytical methods for descriptions (Roulston, 2014). The protocol also contained prepositioned written prompts for the interviewer to consider using iterative questions, should the participant provide a response that suggested contradiction or required a more profound or conscious elaboration; such iterative questions were subtle

and non-threatening to the participant. This section previously addressed interview set-up, logistics, and audio equipment.

The *Qualitative Interview Protocol (Clinician)* (Appendix A), was a semistructured interview protocol for clinicians, to guide but not direct the flow of the interview. The format consists of seven questions, chronologically spaced, allowing the interviewer to ask follow-up probing or iterative questions in response to the interviewee's detailed responses (Roulston, 2014). The protocol was asymmetrically structured, and the questions worded to allow the clinical participant to select their terms as a response. The protocol also includes written prompts for the interviewer to use as iterative questions should the participant provide a response that appears contradictory or requires deeper elaboration; such iterative questions must be subtle and non-threatening to the participant.

Like the patient *Qualitative Interview Protocol (Clinician)*, the structure of the *Qualitative Interview Protocol (Patient)* contributed to inductive analytical methods for descriptions (Roulston, 2014). The significant difference between the two forms was the perspective of inquiry. For the *Qualitative Interview Protocol (Patient)*, the investigative perspective was from the patient's experience of recalling a traumatic event, while the *Qualitative Interview Protocol (Clinician)* was the perspective of the clinician's experience observing the circumstances before the patient recalls a traumatizing incident. The researcher asked Question 7 of the *Qualitative Interview Protocol (Clinician)* only if 1) the non-participant had a therapeutic association with the specific clinician being interviewed, and 2) the patient gave the researcher their written consent to contact and discuss their clinician's experiences with them.

The *Data Cross-reference Sheet* (Appendix B) maximizes participant confidentiality by separating the participants' demographic information from the data generated by the phenomenological methodology. The single, hand-written log sheet limited linking the participants' identity with their completed interview protocol, transcribed interviews, and audio recordings. Each respondent received assurance of confidentiality and about the integrity of the data. The data was redacted with permanent black marker, erasing or changing names in transcripts and on all associated documents, except the *Data Cross-reference Sheet*. The study also redact, delete, or modify information that points directly to a specific individual (Fink, 2000). The form contained a header for the respondent's name and their clinician/patient classification within the study (C or N). The form also cited the participant's eligibility for the study (Q or D) and contained space for additional remarks. The *Data Cross-reference Sheet* was preprint only with the participant number; all other information was handwritten.

The *Request to Access Facilities and Conduct Research Form* was used if participants volunteer through an agency or organization. The form contained a description of the researcher and the type of study proposed. It also provided the parameters of the selection pool and the strategic plan for implementing the study. Finally, it listed the expected duration of the study and a request for space in which to conduct the interviews at the solicited participant interview site.

The *Letters of Cooperation* form was a variant of the Walden University letter designated "Institutional Approval to Conduct Research" (Endicott, 2016b; Walden University, 2014). There were separate versions of the form for each planned research site. The letter contained a statement of approval to conduct this project, with a title

similar to this project's. The message indicated the designated approval authority's understanding of the sample size, the study protocols, and the researcher.

The *Memory Study Participant Schedule* was a paper-and-pencil administrative tool to schedule interviews with participants. Each workday for the respective research or participant interview sites was broken down into one and a half hour blocks, between 8 am and 5 pm, or as restricted by the individual research site or participant interview site. Each block contained space for handwritten annotations indicating the participant number, their study position (C or N), their individual SDHC memory card, and information on whether they completed and returned their required interview session forms.

The forms and equipment described in the previous paragraphs, except the two statements of informed consent, are researcher-produced instruments created specifically for this study. A pilot study was initiated to determine the trustworthiness and practicality of these phenomenological research instruments.

Open-ended questions ensured the sufficiency of data and provide opportunity for the participants to creatively and instinctively respond to questions with lengthy descriptions, metaphors, etc. (Brew & Kottler, 2008; Ivey et al., 2014; Roulston, 2014). The interview protocol was a means to facilitate responses rather than a script. Its intent was to create a 'bottom-up' (Jacob & Furgerson, 2012), or phenomenological examination of the participant's lived experiences, offered by the participant. It started with their knowledge of the world, moved through their perspectives of associated others, and ended with an in-depth reflection of their experiential self. Hopefully the participant



perceived this question progression as commencing with non-threatening, easy-to-answer questions, and concluded with items that might be more controversial or difficult.

The first questions for both the patient and clinician interview protocols start with “Tell me about...” so that they feel invited to open up about their experiences (Brew & Kottler, 2008; Ivey et al., 2014; Jacob & Furgerson, 2012; Roulston, 2014). According to Jacob and Furgerson (2012), expansive questions also allowed collecting large quantities of descriptive data. The sets of questions in this study’s interview protocols contained synchronized questions, intended to work advantageously, and ensured the participant continued to think about their experience while affording them adequate response time. Likewise, the bottom of each page of the patient and clinician interview protocol forms listed prompts that judiciously but inconspicuously interjected both iterative and probing questions. The responses could intensify the trustworthiness of the instrument and the collected data. The forms also included tips to guide the imagery that assists taking the participant back to the time and place of their memory recall. The researcher used the techniques of saturation to determine the sufficiency of the data collection instruments to address the research questions.

The researcher produced the majority of instruments for this study due to the flexibility required by phenomenological studies (Creswell, 2013; Mason, 2010; Patton, 2015) and the lack of existing phenomenological or qualitative instruments that adequately discover the invariant structures and features of amnesiac autobiographical memory recall after the start of psychotherapy. The researcher queried six scholarly measurements, instruments, and scale databases for such existing tools via keywords like

“recall,” “memory recall,” or “recall experience” and “qualitative” or “phenomenological” or “phenomenology” “measurement.”

The study established the validity of the study instruments using the stratagem or procedures reported in the “Trustworthiness” section of this dissertation. A pilot study assessed the stability of the study instruments (see next section), as using a flexible approach that implements change when it was deemed necessary (Creswell, 2013; Mason, 2010). To ensure sufficiency of the data collection processes, peer reviewers scrutinized the researcher-designed instruments. After considering their recommendations and making necessary changes, the researcher used the instruments in a pilot study that duplicates all phases of data collection and analysis, albeit on a smaller selection pool of participants.

### **Procedures for Pilot Study**

The purpose of the pilot study was to determine the procedures, and to change plans before the actual study if required. All procedures for recruitment, participation, and data collection associated with the pilot study was virtually identical to those of the primary study. The most significant difference was the size of the selection pool of participants, approximately one-third of the primary research participant selection. Creswell (2013) posited that a pilot study might refine or reframe the interview protocol and data collection procedures, but the researcher extends the notion of a feasibility study by also using it to determine whether there are personal, institutional, and financial barriers or conflicts of interest (Kim, 2011). The pilot study includes analyzing data, accounting for observed personal biases via the continued journaling, and obtaining the kind of background information described in Table 4.

**Table 4***Breakdown of Coding or Node [for Phenomenology Study]*

Title	Tier	Sequential Position	Symbol
Of/from oneself	1	1st Digit of Code	1
Of/from other	1	“	2
Of/from world	1	“	3
Eye contact	2	2nd Digit of Code	A
Condition of eye(s)	2	“	B
Condition of mouth	2	“	C
Tone of voice	2	“	D
Voice	2	“	E
Perceived feeling	2	“	F
Word choice	2	“	G
Smells, olfactory	2	“	H
Taste, tastes	2	“	I
Torso, arms, hands	2	“	J
Touch(ing), texture(s)	2	“	K
Gestures(ing)	2	“	L
Response to questions	2	“	N
Response to follow-up questions	2	“	N
Response to probing questions	2	“	O
Location, distances, and directions	2	“	P
Internal(ized), consciousness	2	“	Q
Appropriate, comforting	3	3rd Digit of Code	1
Excessive or absent	3	“	2
Dry	3	“	3
Welcoming	3	“	4
Excessive crying	3	“	3
Harsh	3	“	5
Conversational	3	“	6
Interrogating/defensive	3	“	7
Empathetic	3	“	8
Unfeeling, unsympathetic, callous	3	“	9
Neutral	3	“	a
Loaded	3	“	b
Natural	3	“	c
Forced	3	“	d
Open, open-ended	3	“	e
Closed, closed-ended	3	“	f
Tense	3	“	g
Relaxed	3	“	h

Responsive	3	“	i
Unresponsive, closes the conversation	3	“	j
Appropriate	3	“	k
Unused	3	“	l
Up, down, vertical	3	“	m
Left, right, lateral	3	“	n
Near	3	“	o
Far	3	“	p
Sweet	3	“	q
Sour	3	“	r
Salty	3	“	s
Bitter	3	“	t
Umami, savory	3	“	u
Negative odors (offensive)	3	“	v
Positive fragrances (baked goods, florals, etc.)	3	“	w
Sensed feeling (specify in tiers 4 and 5)	3	“	x
Other characteristic, character, or quality	3	3rd Digit of Code	y
Factors, deep-feelings, inner-sense	4	4th and 5th Digits of Code	1 ... n

*Note.* I assigned these titles and codes during the data collection and data analysis stages of the dissertation.

Conducting a pilot study was important because it contributes to validating the content the interview protocol. It also prepare the researcher for potential emerging necessities to readapt the interview questions (Jacob & Furgerson, 2012; Patrick et al., 2011). Additionally, a pilot study may aid in determining necessity to reconstruct the study’s instruments or supporting documents, and in developing alternative strategies to bolster participation and the size of the participant pool (Creswell, 2014). The pilot study was also be beneficial for confirming the trustworthiness of the data and for assessing time requirements and study limitations.

### **Procedures for Recruitment, Participation, and Data Collection**

Instead of a single research site and therefore a single regional or local population, this study recruited participants from various geographic localities throughout the continental United States. Using the *Sidran-Institute List of Trauma Treatment Programs* (n.d.) as one available baseline, the researcher sent e-mails and postal letters to the sites that meet the criterion of treating adult with trauma or dissociative disorders. These emails and postal letters contained virtually identical information as listed in the *Requests to Access Facilities and Conduct Research*, and *Recruitment Flyer*. Eleven sites meet this criterion.

The researcher also solicited four APA division Presidents (or President *pro tempore*) for assistance in locating other field sites and clinician and patient participants. These sites are the *Society for Humanistic Psychology* (Division 32); *Psychologists in Independent Practice* (Division 42); and *Trauma Psychology* (Division 56). The researcher sent emails to the respective President and division listserv [LSTSRV], division membership [MBR], and division announcement [ANNOUNCE] group addresses. The study also recruited via Divisions 32, 42, and 56's respective *Facebook* pages, using the same abbreviated information as email recruitment. The researcher further created a *Google* email account [Gmail] and *Facebook* account specific to this research. In solicitation emails, respondents were instructed to respond to the Gmail account only. Abiding by participant selection criteria and the limits of informed consent and confidentiality, both former patients and their respective clinicians constituted the sample, see above for participant pool selection and size criteria).

When a participant was determined to meet eligibility criteria, the researcher contacted them via the method they specify in their study survey to set up an interview date and time at a mutually agreeable locality, i.e., their therapist's office or a private conference room suitable for conducting private interviews. Due to the 2020-2021 COVID-19 pandemic, the National Institute of Health and the American Psychology Association recommended, and Walden University endorsed, that in lieu of conducting face-to-face interviews, studies should use social media, i.e., FaceTime, Skype, Zoom, and other similar online applications, that offer video capacity (Clay, 2020; Padala et al., 2020; Subocz, 2020) while social distancing restrictions are in place. This research study complied with state and local travel and social distancing restrictions. Once the interview location was agreed, the researcher coordinated with and gain permission from the locality provider using *Requests to Access Facilities and Conduct Research*, to conduct the interview on the set date and time. He arrived at the location ahead of the scheduled time to confirm arrangements and set up the interview room, e.g., lighting, temperature, required forms, protocols, and audio equipment. As necessary, he reset changes to the date, time, or location in collaboration with the participant, and reacquire agreement. If the patient participant had previously consented to notify their therapist of the date and time of the interview, a separate re-notification accommodated the therapist's schedule.

The indicated interview protocols emphasize an understanding of the respective research questions from a phenomenological perspective. The researcher instructed participants to return responses to the study surveys directly to him; the respective recruitment research sites did not know which clients had returned a survey, or the contents of any survey. In this manner, the researcher was the sole data collector of both

the surveys and the later phenomenological interviews. In doing so, the researcher was the principal instrument (Creswell, 2014).

The interview protocol (Appendix A) was not be revealed to study participants; rather, the researcher conducted interviews and made careful observations of the participants during the study. Correspondingly, multiple data sources were useful in this qualitative study. In addition to interviews and observations, where these are available and permitted through informed consent procedures, these audio recording for data transcription ensured the accuracy of data collected (Englander, 2012; Henry & Fetters, 2012). As the purpose of this study was to explore and make visible the meaning of the phenomena in question, what participants *mean* was as critical for the researcher to understand as what they say. Therefore, interviews followed a prescribed protocol, which aided in ensuring the trustworthiness of study results. An interview methodology caution accounted for impromptu interview deviations so that the interviewer could facilitate better understandings of the participants' meanings. A qualitative methodology befitted this study because the initial research plan could not be completely planned; the research questions, interview protocols, and data collection records could have changed as the study participant selection pool and data are obtained (Creswell, 2014). To elucidate how a possible research problem emerged, the researcher objectively conducted interviews, made observations, and collected data products periodically examined throughout the duration of the study.

Data collection consisted of the phenomenological interviews, each anticipated to last one and one-half hours, and a subsequent follow-up session during which the participant could perform member-checking of their individual interview transcript. The

length of time between conducting the interviews and creating respective transcripts, which used both manual and electronic transcription, was required a minimum of two weeks at each respective participant interview site.

After concluding the phenomenological interview, the researcher provided an initial debriefing, thanking the participant for taking part in the study, and assuring them that the study could not have been a success without their participation. He reminded each participant about the endeavors to ensure their privacy, confidentiality, and informed consent and informed them of the time it would take to create the transcript from the audio recording. As a critical stratagem of trustworthiness, he also reminded them that their participation was not yet over; instead, their future feedback through the member-checking process will ensure accuracy of content. Finally, the researcher informed them that during the follow-up member-checking session, they would receive their incentive for completing their participation.

The researcher used a protocol to interview both participating clinicians and participating former patients. He conducted an on-the-spot risk assessment of patient participants by asking the participant to recall, in chronological order, the events they could remember after their injury.

As this study was a qualitative exploration of the invariant structural features of remembering for previously amnesiac participants, the interview protocol was a “living document” and required periodic changes as new insights emerge (Creswell, 2014; Englander, 2012). At this time, the decision to use the cited interview protocols was based on an independent literature review about the validity and reliability of autobiographical memory instruments for phenomenological studies. One or more could



be used, combined, and assimilated into a smaller protocol; this decision was in response to and accordance with the aim of determining at least three things from the final product: 1) confirming via the participants' clinical diagnosis their previous traumatic amnesia and treatment period; 2) exploring the participants' memory retrieval experiences prior to the reemergence of their previous traumatic amnesia, as a result of therapy; and 3) analyzing any emotional change at the time of the patient's partial or full recovery of the past amnesiac memory. The proposed pilot study validates this instrumentation.

Concerted observation of the participant's face and body changes was also be important while conducting the interviews (Creswell, 2014). Applying an intrusive and costly neuroleptic pupilometer to the participant's face to observe eye dilation (Thiagarajan, & Ciuffreda, 2015), or affixing a sphygmomanometer and galvanic skin sensors to the participant's arm and fingers to discover the participants heartrate, blood pressure, and perspiration rate (Meyer et al., 2016; Wisco et al., 2015) would be detrimental to collecting authentic qualitative data. Therefore, the researcher relied on profound interpretive analysis of their verbal responses and potential physiological changes, following Creswell's (2014) suggestion that recorded interview sessions may also be a source for data collection. Additionally, he asked the participants for a description of their past situation when they experienced the study's phenomenon. These interview questions meet the criteria of providing a thick-description (Englander, 2012; Giorgi, 2009), which was vital, since the researcher as narrator needed to experience the discovery of the meaning of the phenomenon. The literature reviewed to date has centered on a limited number of corporeal factors, including body language and eye dilation (Flusser, 2014; Harrison et al., 2006; Laeng et al., 2012; McNeill, 2007). Because

eye dilation has been linked to emotional response (Burley et al., 2017), it was sufficient if the researcher observes “an emotional response,” or determines that a specific change in an emotional state has taken place. In this manner, the study avoided simultaneously using an intrusive monitoring device to track physiological changes, i.e., eye dilation, heartrate, blood pressure, and perspiration rate, concurrently with a change in participants’ emotional and feeling status. Similarly, specific corporeal presentation or changes in body language or gestures have linked to emotional responses (Flusser, 2014; McNeill, 2007); therefore, this study again avoided the simultaneous use of intrusive monitoring of physiological changes concurrent with a change in participants’ emotional or feeling status.

The use of specialized interview protocols was sufficient to substantiate the clinician and patient affirmation of return of autobiographical memory. By interviewing the participant clinicians and former patients, where permitted, about the participants’ case histories and psychological reports about affective assessments before and after the therapeutic regimen, the researcher was able to qualify any improvement, reactivation, and reconsolidation of previously remote autobiographical memory, and noted any emotional changes that occurred at the same time as the memory recovery. This inquiry approach drew upon focused outcomes, while attempting to control the natural research environment to the greatest degree possible.

The naturalistic study setting offered a transcendental-phenomenological reduction stratagem of inquiry, and two-phased (pre-, and post-) measures to evaluate the trustworthiness of the research process (clinician review) and the treatment process (patient review). The precepts of transcendental phenomenology are intentionality,

eidetic reduction, and foundations of meaning (Moustakas, 1994). Transcendental phenomenology procedures include identifying the phenomena for study, “bracketing” (Creswell, 2013, p. 80) or *epoché*, and collecting data from the selected participants. Following data collection, the researcher conducts interpretation and develops both a textured description of what the participants experienced, and a structural description of how they experienced the phenomena in the contexts of the world environment and other situations or conditions) (Creswell, 2013; Mishara, 1990). Using this orientation, the researcher: 1) explored the first-person perspective of recollecting previously unavailable autobiographical memory and associated emotionality; 2) viewed the first-person orientation or perspective adopting the participants’ perspectives as insight; 3) explored further the theories of affective networks (Izard et al., 2011; Vytal & Hamann, 2010); and 4) addressed the reactivation of autobiographical memory from trace memory (Conway et al., 1996; Conway et al., 2000; Nader, 2003; Nader & Hardt, 2009).

The role of transcendental phenomenological research was to maintain an inductive phenomenological reduction and adaptive phenomenological, i.e., natural, attitude to the subject (Creswell, 2013; Englander, 2012; Patton, 2015; Scott-Tilley, 2012). It also included self-checking and ensuring that the research study was free of bias throughout each stage of the process. The transcendental-phenomenology use of *epoché* cultivated the disclosure of the researcher’s and participants’ experience and feelings (Creswell, 2013; Moustakas, 1994; Patton, 2015) related to patients’ experiences and invariant structural features preceding memory return. The analytical transcendental-phenomenological reduction (Moustakas, 1994; Patton, 2015), consisted of the researcher’s extensive use of intentional interviewing techniques (Ivey et al., 2014),

thereby discovering data in its purest form, untainted by irrelevant or superfluous distractors, and determined the essence of the phenomenon being researched.

Finally, the researcher used imaginative variation to deduce the conceptual and fundamental essence of the reported experiences (Moustakas, 1994). Accurately recounting and protecting the naturalistic setting and study records, to the greatest degree possible, also contributed to the trustworthiness of the research study. The analysis process included bracketing the data (Creswell, 2013; Patton, 2015); spreading it out for analysis; treating each piece equally; and organizing the data into evocative data clusters. The researcher investigated and scrutinize the data clusters using a delimitation process that eliminated irrelevant and repetitive data and created an imaginative variation (Moustakas, 1994; Patton, 2015) of core patterns, themes, and phenomenological essence.

If the research organizations do not provide a workspace for conducting dialogues, the researcher reserved a conference room or similar clinical space near the research organization to conduct the interviews (Pribulick et al., 2010). If the research site leadership decline to distribute recruitment material in a fashion that contributed to justice, benevolence, and equality, the study assumed that the organization had declined to participate in the study. Fair and just recruitment from the population was important to the process of obtaining a random but purposeful selection pool of participants (Creswell, 2013). Another contingency plan for recruitment was to request assistance from the current presidents of four APA divisions via letters of inquiry on their respective membership servers (Listserv). Those units were: Division 32, *Society for Humanistic Psychology*; and Division 53, *Trauma Psychology*. Under this contingency plan, the

researcher assumed the burden/costs of traveling to the participant, and scheduling, reserving, and conducting the interviews at a quality clinical or research setting.

### **Data Analysis Plan**

The process of data analysis began with decontextualization (Bengtsson, 2016, p. 11), the process of understanding the whole or being familiar with all of the data, and then breaking it down into meaningful units. Merriam (2009) and Moustakas (1994) referred to this process of deconstruction in classical phenomenology as bracketing, or transcendental-phenomenological reduction (Moustakas, 1994; Patton, 2015). The researcher deconstructed the data from the interview protocols, as well as the transcribed data from the audio recordings, into a constellation of words, sentences, or phrases, in order to reveal a root meaning that could not be further subdivided. Because qualitative data are text-based, the translation of this form of data into codes formed the basis of my data analysis process (Hilal & Alabri, 2013). At this level of data analysis, coding acted as a form of substitution for complex representations of meaning into one-, two-, or three-digit symbology (Saldana, 2016). As a result, the codes facilitated identifying essential perceptions and ideas, which subsequently may be reassembled into clusters, patterns, or schemes (see Table 4).

A transcendental-phenomenological reduction stratagem of inquiry evaluated the trustworthiness of the research process in the clinician reviews, and the treatment process in the patient reviews. These transcendental phenomenology procedures also identified the phenomena to study, “bracketing” (Creswell, 2013, p. 80) or epoché, and collecting data from the participant pools. After collecting data, the researcher interpreted it and developed both a textured description of what the participants experienced, and a

structural description from the perspective of the other and the world, in order to develop trustworthiness for the data. The second stage of the analysis comprises what Bengtsson (2016) refers to as “recontextualization” (p. 12), or the process of verifying that the uniqueness and quality of the data relates appropriately to the context of the study, or that the phenomenological experience of selection pool participants was thoroughly revealed (Shosha, 2012).

At this stage of data analysis, the researcher reexamined all of the data from the interview protocol and audio transcripts, concurrently with the bracketed data, or meaning units (Graneheim & Lundman, 2004; Shosha, 2012) to ascertain whether or not additional data would be useful. Next, the researcher used the process of horizontalization, which assigned equal value to each meaning unit that correlated to a segment of meaning (Merriam, 2009; Moustakas, 1994), in order to cluster segments into meaningful themes. The researcher synthesized these patterns and themes into a description of the texture of the data and coded them using a logical hierarchical topology of the essence of the phenomena of this study.

All data has meaning; even discarded data deserves explanation. Because it is human nature to become enthralled with data analysis, the researcher planned to occasionally distance himself from the process, and to discard useless data that did not correspond to the aim of the study. The researcher recontextualized seemingly unrelated data, and only after repeated examination for uniqueness and quality, he discarded it. The researcher also used categorization (Bengtsson, 2016, p. 12) to create categories and condense the meaning of the extensive implications of the lived experience. Eventually, he generated a textural-structural description for each selection pool

participant by repeating the data analysis steps. He next integrated these depictions into a universal account of group experience (Moustakas, 1994; Shosha, 2012) and used compilation (Bengtsson, 2016, p. 12) as the last stage of data analysis to explore what the participants had sensed of their experiences and how they then transformed these experiences into consciousness (Bengtsson, 2016; Shosha, 2012). Finally, he summarized and recounted the findings using *epoché*, correlate the findings with those in the existing literature, and addressed whether or not the study findings and results are logical and trustworthy.

The researcher used NVivo version 11.0 (QSR International, 2015) to organize patterns and themes that support and substantiate his hand-coded endeavors. NVivo aided in revealing insights in unstructured data associated with the review of the qualitative literature and the interview protocol used in this study. NVivo software additionally uncovered correlations in ways that were not possible with manual coding alone. The software assisted the study by rigorously supporting the research findings with evidence (Hutchison et al., 2010; Welsh, 2002; Zamawe, 2015).

### **Trustworthiness**

A pivotal standard for judging a qualitative study is the researcher's attempt to provide believability based on consistency and reason, perceptiveness, and instrument utility (Popay et al., 1998), and by verifying the descriptive data, in place of validation and reliability measures (Lincoln & Guba, 1985). Creswell (2013; 2014), Lincoln and Guba (1985), Mays and Pope (2000), Patton (2015), and Popay et al., (1998) collectively describe four comparable evaluative criteria for qualitative research: credibility, transferability, dependability, and confirmability.

Credibility is equivalent to internal validity in quantitative research (Bengtsson, 2016; Billups, 2014; Leung, 2015), for it indicates whether qualitative research findings are truthful and accurate. Plans for securing credibility include prolonged engagement in the field, conducting interviews and persistent observations, triangulation, member checks and peer debriefing, structural corroboration, consensual validation, referential adequacy and saturation, and reflexivity. The research indicated in this dissertation required prolonged engagement in the field in that it took time to obtain the necessary participants, conduct the pilot study, and perform the primary research. Soliciting the 20-person randomly selected participants from the selection pool, and spending one and a half hour interviews at interview sites, equated to 675 working-hours interviewing and observing participants. This time did not including debriefing and follow-up interviewing. The researcher also employed triangulation, which Creswell (2013), Mays and Pope (2000), Patton (2015), and Shenton (2004) describe as the use of several different data sources, methods, supporting theories and conceptualizations, and investigators. He also compared the results from this dissertation with the findings and conclusions of other resources to facilitate evidence of data quality (Popay et al., 1998; Williams & Morrow, 2009).

In order to ensure the adequacy of the data, and its description and interpretation (Frost et al., 2011; Morrow, 2005; Popay et al., 1998), the design of this study uses different recruitment and research sites, and participant interview sites to solicit not only a random but purposeful sample, but also diverse or heterogeneous study participants (Greenbank, 2003; Patrick et al., 2011), to provide a necessary balance between participant meaning and researcher interpretation (Martinez-Mesa et al., 2016; Williams



& Morrow, 2009). Member checking performed the same service. For the purposes of this study, the multiple protocols for interviewing both clinicians and patients from different locations serve to satisfy the fundamental corroboration stratagem of credibility. Involving the participants in critiquing their interview data from an early stage facilitated rapport and trust (Brew & Kottler, 2009; Ivey et al., 2014). During member checking, the researcher also presented iterative questions that elicit additional details, which in turn served to confirm the honesty of the participant and the veracity of the study data (Shenton, 2004). The researcher also monitored saturation via intra- and intercoder reliability; saturation a strategy to recognize the moment when more qualitative research data would not provide new properties or insights into the patterns or themes, thereby making the decision for the researcher to cease collecting data (Creswell, 2013; Mason, 2010).

Phenomenology procedures identify the phenomena to study, “bracketing” (Creswell, 2013, p. 80) and collecting data from the selection pools of participants. Therefore, this researcher interpreted and develop both a textured description, i.e., what the participants experienced, and a structural description, i.e., from the perspective of the other and the world, in order to take a second look at the data. Collecting and analyzing data from a multiple-perspective should also reinforce verification of the descriptive data, and act in place of validation and reliability measures.

Reflexivity is a credibility stratagem in which the phenomenological researcher maintains an understanding of their role in the inquiry. Personal history, such as upbringing and education, culture, and other experiences have the potential to shape interpreting data and formulating themes (Berger, 2015; Creswell, 2014; Greenbank,

2003). Because reflexivity carries an impact beyond introducing biases and values into the process of collecting data, the researcher's background could reshape the direction, and therefore the impact of the study. This researcher plans to implement reflexivity by journaling throughout the dissertation journey and the peer debriefing processes.

The researcher conducted peer reviews or debriefings (Creswell, 2013; Creswell, 2014; Roberts, 2010; Rudestam & Newton, 1992; Shenton, 2004) at each stage of the dissertation process. The researcher's approved Dissertation Committee, the University Research Reviewer (URR), and IRB, was pivotal in providing validation that contributed towards establishing the credibility of the researcher's chosen design, methods, findings, and discussion. These periodic supervisory reviews provided reflective commentaries and comparative conclusions (Shenton, 2004), competing interpretations, and judgements on the adequacy of the data, descriptions, and interpretations (Morrow, 2005; Popay et al., 1998). The reviews also contributed to parallel inquiries related to ethics, reflexivity, bias, and scholarly validation of the research findings (Billups, 2014; Williams & Morrow, 2009).

Transferability—equivalent to external validity or generalization in quantitative research (Bengtsson, 2016; Billups, 2014; Leung, 2015)—is how qualitative researchers demonstrate how study findings apply to other research inquiries on a similar phenomenon, population, or qualitative situation. Using the stratagem of *thick description*, which allows readers to make decisions for themselves regarding the merits of the study data (Creswell, 2013; Creswell, 2014; Lincoln & Guba, 1985), the researcher offered rich details that describe the movements and constituents of the world and psychogenic others, and the emerging patterns and schemes gleaned from the data, in

order to allow fellow researchers the ability to repeat the study within a broader population (Shenton, 2004; Shosha, 2012).

The study also set boundaries; at the onset of the study and repeatedly during its process, the researcher reiterated to the participants the number of recruits that are taking part in the inquiry, where they are located, the restrictions placed on those who contributed data and support, the total number of participants and contributors involved, the data collection methods, the data collection duration, the projected interview session length, and the time required to assimilate data from all participant interview sites. Explanations of the scope and boundaries of this study aided other researchers to transfer or replicate the study. Variety in participant selection also ensures transferability.

Dependability—the qualitative counterpart to reliability in quantitative research (Bengtsson, 2016; Billups, 2014; Leung, 2015)—is the measurement of how well another qualitative researcher or team may repeat the study and produce findings that are similar or consistent. This study achieved dependability by employing inquiry audits, or external audits, which require an external researcher to review and examine the research processes and data analysis to ensure that the findings are consistent and dependable (Creswell, 2013; Creswell, 2014; Lincoln & Guba, 1985). Supervisory reviews by the Dissertation Committee, URR, and IRB scrutinized this study’s phenomenological processes and collected data to weigh the accuracy and gauge whether the data supports the conclusions, judgments, and outcomes.

Confirmability—the qualitative counterpart to objectivity in quantitative research (Billups, 2014)—is the degree of objectivity or neutrality in the qualitative research findings. Because the findings of qualitative studies typically consist of thick description,

rather than numbers, the results emerge from translating and interpreting the research.

Such understanding, if influenced by the researcher's motivations or biases, may become skewed.

Bengtsson (2016), Greenbank (2003), and Fink (2000) posit that confirmability is also derived from the researcher's credentials and social values. The researcher is a thirty-year, armed forces veteran, who was instilled with the following core values: integrity above all else, service to others before self-interest, and excellence in all he does (USAF, 1997). These core values continue to influence his post-service social principles and serve as lifetime credentials.

The researcher also employed audit trails (Billups, 2014; Lincoln & Guba, 1985), which highlighted each step or action the researcher took with data analysis, to demonstrate rationales for the decisions made during the respective stages of data analysis, including those for ensuring accuracy in the findings. The researcher created an adequate account of the methods and data analysis process by journaling and building a database of files that recorded all changes made to the raw data, data-reduction and data-analysis products, data-reconstruction and synthesis products, process notes, materials relating to aims and characters, and tool development information (Mays & Pope, 2000; Patton, 2015). The audit trail of electronic file names remained virtually unchanged, except that they were date-stamped, with indications of who made changes and affixed with a comment or notation blocks where changes were made. Software tracked changes. This technique of accounting for changes to the research study documentation ensured that the study exists independently, such that another trained researcher could evaluate the data in the same way and reach the same or similar conclusions.

The study employed intracoder reliability, i.e., within or via the study researcher, through several independent coding sessions (Saldana, 2016) for each interview transcript; the researcher hand-coded each transcript at least twice (Shosha, 2012), each time listening to the audio recording anew. The researcher also used Nuance's Dragon Naturally Speaking (v15.0) and QSR International's NVivo Transcription suite to produce other transcript versions of the same interview materials. Hand transcribing were first, so that the electronically generated transcriptions could not influence them. The researcher coded the manual transcriptions by using the categories of data indicated in Table 4. These categories furthermore illustrate the hierarchy of coding. NVivo version 11.0 (QSR, 2015) was an additional level of intracoding reliability that organized emerging patterns and themes, and support coding efforts within both the manually produced and electronically generated transcripts.

The researcher ensured intercoder reliability, i.e., between or via external examination, through peer reviews, debriefings, and inquiry audits (see above). The Dissertation Committee, URR, and IRB were crucial in providing validation. The approval of all three bodies contributed to the credibility of my data collection methodology, the content and context of my findings, the discussion of the research, and the tables and figures representing those results.

### **Ethical Concerns**

Qualitative research typically addresses ethical concerns during the planning and design stages of a study (Creswell, 2013). The qualitative researcher, however, must be flexible, and this study instead addressed concerns for preventing ethical dilemmas at each stage (Creswell, 2013). Weis and Fine (2000) have suggested that the qualitative

researcher must consider a set of options, as exemplified in the APA's (2010, 2017) *Ethical Principles of Psychologists and Code of Conduct*, and use reflexivity and self-evaluation during the planning and oversight of the study. This researcher prioritized maintaining sensitivity to vulnerable populations and imbalanced power relationships; his topmost priority, however, avoided putting participants at risk of psychological stress and harm (Miracle, 2010; Shivayogi, 2013). In addition to this most central ethical concern, the researcher also considered other possible ethical issues in research design, data collection, and data analysis (Sanjari et al., 2014), by reviewing each of the APA's five general principles and ten ethical code standards, and ascertaining how each was be applied to every phase of this qualitative study.

To provide privacy and thereby prevent possible stress, should the study circumstances create a reversible conflict of interest, i.e., a situation in which a clinician also becomes a patient participant, a disclosure option was offered to the patient if all parties agree. This proviso allowed consenting patients to participate even if they had not completed therapy or prematurely stopped participating in a treatment or intervention. Under these circumstances, the researcher contacted the attending therapist, psychologist, psychiatrist, or social worker, etc. in advance to provide them with the date and time of their patient's interview, so that they supported them if necessary. Interview locations was only provided to guide the attending therapist to the actual site. As the wellbeing of the participant was of critical importance, data collecting would stop immediately under adverse conditions, the researcher would alert the attending support professional, and the participant would remain in the presence of other healthcare providers until their support arrived. In this situation, as data collecting was interrupted or withdrawn, a new risk

analysis was performed. If the participant could no longer participate, that researcher rejected that participant's data from the study, and invited another eligible participant from the selection pool to replace the departed one.

Persistent reflexivity and periodic peer debriefing monitored the researcher-participant relationship for evidence of emerging stress or psychological harm to the participants. Such deterioration could have been detrimental to the researcher-participant relationship and the participant's mental well-being, and counterproductive to the participants' ongoing or previously completed therapeutic intervention and to the goals of this phenomenological study (Brown et al., 2011; Brown & Lent, 2008; Falender & Shafranske, 2004, 2008b; Sanjari et al., 2014). Because the study asked the participants to discuss rather sensitive information, there was a risk of psychological distress. The researcher prevented or alleviated such stress by repeating during the interview that the participant could quit at any time, that the researcher would stop the interview and made sure that the participant wanted to go on if the participant seemed distressed, and the researcher would also give them resources for support where needed. The study was deliberately designed to protect personal information and the study's respondents from potentially harmful consequences.

Data collection and data analysis processes for this qualitative study was as overt and transparent as possible, and the researcher recorded the findings to strengthen the researcher-participant relationship and add to the trustworthiness of the entire study (Sanjari et al., 2014). He informed participants of the safeguards in place and consent granted for creating field notes and audio recordings. The researcher addressed a high degree of attention to details, and was capable of multi-tasking, but as an instrument of

qualitative measurement, he still depended on the audio data to catch details of the interview sessions.

Clinician and patient participants treatment complied with the Code of Federal Regulation, Title 46, Public Welfare, Department of Health and Human Services Part 46, *Protection of Human Subjects* (45 CFR 46, 2009; 78 CFR 5566-5702, 2013), the *Belmont Report* (National Commission for the Protection of Human Subjects of Biological and Behavioral Research, 1978), and the *Ethical Principles of Psychologists and Code of Conduct including 2010 and 2016 Amendments* (APA, 2017). Complying with these regulations and guidelines ensured respect for persons and beneficence.

The design and procedures described in this study provided participants with ample opportunities to make their own decisions; the survey and interview protocol instructions clarified that the researcher would not create adversity or retaliate against a participant's refusal to participate or decision to withdraw early from the study; the conditions that ensured participant privacy and confidentiality always applied. No less than one month passed between the recruit submitting their notice of intent to participate, receiving the *Study Survey*, and returning it completed to the researcher. Additionally, this study's design maximized benefits and minimized risks to individuals (Smith, 2003). Finally, the researcher informed participants about the inclusion and exclusion criteria for participating in the study (Sales et al., 2000; Smith, 2003), which was based on eligibility criteria and not because of availability or status as a vulnerable person. The IRB also reviewed and approved this dissertation's methodology for conducting human participant research on behalf of Walden University and awarding a unique IRB number: Walden



University's approval number for this study was 11-26-19-0249807 and it expired on November 18th, 2021.

All paper documentation, including interview protocol, informed consent, working papers, etc., and all audio media were safeguarded according to procedures of the APA (APA, 2002; APA, 2007; Drogin et al., 2010) and the revised Health Insurance Portability and Accountability Act of 1996 (Gunn et al., 2004; Public Law 104–191, 110 Stat. 1936, 1996; US Department of Health and Human Services, 2013). The researcher labeled paperwork and audio media as “confidential” to protect identities. He created a single audio file, derived from a memory card, as permitted and approved by each participant. Each card held only one participant's input. The study included a Privacy Act statement with all documents and files containing participant personally identifiable information (PII) (Public Law 93-579). The researcher maintained control of these documents and data files from the moment they were created through transcribing and archiving. The researcher stored materials in a personal, four-number electronically-locked safe, to which he alone had the combination. Paper documents were converted into electronic files, typically PDFs, to preserve legal documents and study data. The study maintained all electronic records, including audio files, on a password-protected and encrypted external hard drive. When the files were being accessed, the computer to which the hard drive was connected was isolated from external access points: all Wi-Fi, Ethernet, DSL, LAN, and other networking capabilities were disconnected or disabled. The researcher cleared the computer memory cache after each use of the external hard drive. He maintained the paper and electronic files for five years, and then destroyed them with a cross-cut shredder or by incineration. He first ran electronic data stored in

hard drives, thumb drives, or memory cards through the Microsoft Secure Delete (*sdelete* is a Microsoft standard file included in current Windows platform operating systems), and then degaussed (wiped) them three times.

The researcher ensured participant confidentiality by separating study participant demographic data from interview data. He used a single, hand-written log sheet as the only means of linking the participant's identity with their completed interview protocol, transcribed interviews, and any audio media. He reassured each respondent of the confidentiality of their participation and the integrity of the data by redacting with a permanent black marker, erasing, or changing any names in transcripts and on all associated documents, except the *Data Cross-reference Sheet*. He also redacted, deleted, or replaced any information that pointed directly to a specific individual (Fink, 2000). All individual names, regardless of role in the research were redacted from transcripts or replaced with a generic title that included participant number. The researcher's dissertation committee and the Walden University School of Psychology, Program Director could review the study data, but they would not be provided participant identifying information. The information about this possibility, confidentiality, and privacy protection procedures, was included in the informed consent process.

### **Summary**

This chapter discussed the phenomenological research design and the rationale behind his aptness for this study. It examined the role of the researcher and the participant selection methodology. After reviewing the selection pool criteria and methodology, the discussion moved on to instrumentation methods—previously published and researcher-developed—and a brief consideration of the requirements and rationale of a pilot study.

After discussing the process of collecting the data, the chapter detailed the study's data analysis processes. The closing section focused on how the study assessed trustworthiness and addressed ethical concerns.

The following chapter addresses the results of the pilot study, the setting for collecting the data, and the participant demographics. Next it provided an intensive review of how the was collected and analyzed for this phenomenological study. Finally, it substantiated the evidence of the data and methods' trustworthiness using the study results.

## Chapter 4: Results

The purpose of this study was to improve clinicians' understanding of the role played by possible invariant structures and features of experiences that precede the return of autobiographical memory in individuals with trauma-related amnesia in psychological treatment. I used transcendental phenomenology to understand the phenomenon of what precedes traumatic memory-return following psychotherapy. The research questions guiding this study were:

RQ1. What were the experiences of living that proceed traumatic memory-return following psychotherapy as an adult with autobiographical amnesia?

RQ2. What were the experiences of living as a clinician or observer of an adult that proceed traumatic memory-return following psychotherapy of an adult patient with autobiographical amnesia?

This chapter provides a description of: (a) the pilot study, (b) the research setting, (c) study participant demographics, (d) data collection, and (e) data analysis. This chapter also provides a thorough description of the trustworthiness of the study methods, results of the study.

### **Pilot Study**

The pilot study was conducted with five participants who completed the prescribed Statement of Informed Consent and Study Survey and met the criteria for participating in this study (see tables 2 or 3 in Chapter 3). The five participants (three clinicians and two former patients) reviewed the items on the respective informed consent and were instructed on the steps to be taken to conduct the prescribed interview protocol. Due to the emergence of the 2020-2021 COVID-19 pandemic, all interviews were conducted

using only the Skype or Zoom social media application (Clay, 2020; Padala et al., 2020; Subocz, 2020). All participants were asked to provide responses to identical interview questions from the respective prescribed interview protocol. At the conclusion of the five interviews, each participant was asked to provide immediate feedback on the interview process regarding question format, appropriateness and relevancy, and readability.

From the pilot study interviews, the participants reported the questions, for their respective study role, were easy to understand, appropriate, and relevant to study purpose statement and research questions, and did not cause them emotional or physical distress or harm in any way. I determined that the changes to the qualitative interview protocol questions, for both the clinician and former patient roles, could be used for this study without any amendments to the questions or interview procedures.

### **Setting**

All participants consented to be interviewed via Skype or Zoom per the National Institute of Health and the APA recommendations (Clay, 2020; Padala et al., 2020; Subocz, 2020). All prescribed statements of informed consent and study surveys were initiated and returned via endorsed electronic mail as was the coordination and scheduling of the participant interviews. Participants did not ask precipitating questions prior to their respective interview. Each participant was interviewed only one time.

### **Demographics**

Fifteen participants met all the eligibility criteria in this study. Five clinician participants were female and two clinicians were male. These seven clinicians described four female and three male former patients. Conversely, eight male and three female former patients participated in this study (see tables 2 and 3 notes). Of the clinician

described former patients and former patient participants, eight were White, six were Black, and one was Native American; ethnicity and age data was not collected on the clinician participants but instead on their respective former patients. The range of the participants' age was 21 years old to 70 years old. The average age was 43.73 years old while median age was 40 years old.

**Table 5**

*Participant Demographics*

Participant No.	Type of Participant	FP Gender	FP Ethnicity	FP Age
0002	C	F	W	32
0005	FP	M	W	70
0006	C	F	NA	28
0007	FP	M	W	62
0008	C	M	W	21
0009	C	M	W	38
0010	C	M	B	40
0011	C	F	W	55
0012	C	F	B	37
0013	FP	M	W	58
0014	FP	F	B	33
0015	FP	F	W	35
0016	FP	M	B	57
0017	FP	M	B	49
0018	FP	F	B	41

*Note.* The total number of participants was ( $n = 15$ ), while the total Clinician participants was ( $n_C = 7$ ), and the total Former Patient participants was ( $n_{FP} = 8$ ). Data columns for FP Gender, FP Ethnicity, and FP Age were data reported from the clinician participants for the former patient they described and from the former patient participants for themselves.

**Data Collection**

The recruitment period ran from January 2 through December 30, 2020. The period for the pilot study was January 2 through June 26, 2020, while the recruitment period for

the main study was June 27 through December 30, 2020. Thirty-four agencies listed in the Sidran PsychTrauma Information and Resource Service (n.d.) Trauma Treatment Programs list were solicited by postal and electronic mail and asked to post the recruitment flyer in their respective facilities; at no time was data or client information asked for or received in return. Four APA divisions were solicited in the same manner. This researcher has no way of knowing which agencies or divisions actually posted the recruitment flyer and responding recruits were not asked how they found out about this study. Twenty-three study recruits replied directly to the study point of contact (POC) on the recruitment flyer and asked to participate. Each recruit was then electronically mailed a Statement of Informed Consent and Study Survey. Upon returning these two completed documents to the study POC, the recruit was deemed eligible or not using tables 2 or 3 from Chapter 3. All recruits who were deemed eligible had their contact information placed in a selection pool. Five names were randomly selected to participate in the pilot study and 15 were randomly selected for the main study.

Fifteen interviews were conducted remotely via Skype or Zoom video social media. Each interview was individually recorded with a Tascam Digital Stereo Audio Recorder (item number DR-05X) and a 4GB Toshiba SDHC memory card (item number SD-K04G); no backup devices and audio files were used. The interviews with former patients participants ( $N_{FP} = 8$ ) lasted an average of 58 minutes and 18 seconds while the average interview time for clinician participants ( $N_C = 7$ ) was 37 minutes and 30 seconds. Word for word transcriptions of each interview audio file was manually created and saved as an Office Word (v2013; Microsoft, 2013) document. Each interview was also transcribed from each audio file using Nuance's Dragon Naturally Speaking (v 15.0) software and

saved as a Word document. The two resulting documents was compared using the Word comparison function creating individual participant ‘final’ transcripts; no differences in transcriptions were discovered. The individual manual and electronic transcription files, along with the ‘final’ transcript were saved to the same SDHC memory card as the originating audio files to preserve separation of each participant’s interview data. All collected data for each participant was labeled using the participant’s assigned number plus the file short name. The hand-written data cross-reference sheet remained the sole source that identified the participant’s name and their assigned participant number. The sole deviation in data collection from the plan presented in Chapter 3 was that the interview mode was restricted to social media applications recommended by the APA due to the emergence of the 2020-2021 COVID-19 pandemic (Clay, 2020; Padala et al., 2020; Subocz, 2020). Participant 001 was deemed ineligible after receipt of the completed statement of informed consent and study survey but before the interview was conducted due to contradicting eligibility factors. Participants 003 and 004, although they completed their respective statement of informed consent and study survey, dropped out of the study without explanation.

### **Data Analysis**

For this dissertation, the Modified Stevick-Colaizzi-Keen Method was used (Moustakas, 1994) for data analysis. This transcendental phenomenological method was easily implemented and provided a clear description of steps or actions (see Creswell, 2014).



## **Epoché**

I was not affiliated or associated with any of the study participants. With exception of the collected demographic data and study survey responses, I had no personal experiences influenced by my prior lived experiences or by the study participants. I also held true to my core and ethics values cited in Chapter 3, thereby maintaining my integrity as the primary instrument for this phenomenological research. In doing so, I was able to identify and manage any potential bias and thus reflected the truest experiences of this study participants (see Moustakas, 1994).

After all interview data was transcribed into individual Word documents, the interview transcripts were exported to NVivo software for iteration and data analysis. The data analysis design, based on the modified Modified Stevick-Colaizzi-Keen phenomenological analysis model (Moustakas, 1994), involved the actions in the following subsections.

### **Horizontalization**

The data analysis process continued by listing and preliminary grouping of all of the perceptions and experiences shared by both the clinician and former patient participants during their respective interviews. Each participant's final transcript was manually deconstructed whereby key words, associated with their lived experience of memory recall of trauma events, were categorized first into one of three phenomenological domains (i.e., the World, the Other, or the Self). For purpose of this dissertation, the World represented the clinical setting in which the former patient participant recalled their trauma memory. The Other signified the clinician participant who initiated a treatment for the former patient they chose to discuss in the interview and

who was present during their respective former patient's recall. Last, the Self epitomized the former patient participant who experienced traumatic amnesia and through receiving treatment was able to recall their trauma-related memory. Responses were entered into an Office Excel (v2013) (Microsoft, 2013) workbook containing worksheets for the World, the Other, and the Self. Each key words, associated with their lived experience of memory recall of trauma events, were further delineated. The World, coded with the first digit as a 1. The World was subdivided into 8 features or structures while the Other, coded with the first digit as a 2, was further delineated into 13 features. The Self, coded with the first digit as a 3, was also treated in this way and subdivided into 18 features or structures of the Self (i.e., physicality and demeanor, emotionality, cognitive processes and sociability). See Table 4 for the delineation of each codes' digits. Each participant's mention of a word that described their lived experiences was coded to reflect similarities and distinctions in data from which this researcher was able to ascertain possible dominant themes or patterns for this study. Study participant interview data was then compiled for comparison between participants in an attempt to ascertain similarities and distinctions. For purpose of trustworthiness, horizontalization also performed using the NVivo qualitative software. A comparison of the manually coded Excel workbook worksheets and the NVivo analysis display of the same data led to the discovery of invariant elements which represented units of meaning (Moustakas, 1994).

### **Reduction and Elimination**

The interview data was collectively reanalyzed to reduce the amount of diverse heterogeneous data and eliminate all the irrelevant data collected from the previous action (Moustakas, 1994). The elimination and reduction from data of experiences results in

invariant constituents or 'meaning units' (1994). The principal data feature that governed the reduction of individual data was the infrequency of key word use in an individual transcript. The infrequency was recorded in both the Excel workbook worksheets and the NVivo analysis display. Conversely, the prime data feature used to guide elimination of participant experience data from the Excel workbook worksheets and the NVivo analysis display was irrelevance to the research questions, overlapping and repetitive expressions, and vague expressions.

### **Clustering Experiences**

Following the reduction and elimination action, the remaining data from the used analysis products (Excel and NVivo products), the phenomenological analysis continued by clustering all remaining data of invariant elements that were gleaned in the two previous actions (Moustakas, 1994). The discovered clusters of invariant elements provided evidence of related experiences that were paramount in ascertaining the core themes of the data.

### **Identification of Invariant Constituents**

Via the Modified Stevick-Colaizzi-Keen phenomenological analysis method (Moustakas, 1994), the next step was to make a final identification of the invariant constituents and themes. This was accomplished by careful and diligent comparing of each cluster of invariant constituents cultivated from the raw data to ensure that the complete data was properly investigated and identified (Moustakas, 1994).

### **Textural Descriptions**

The next step in the Modified Stevick-Colaizzi-Keen phenomenological analysis method (Moustakas, 1994) involved the creation of individual textural descriptions based

on the final invariant elements and themes that were developed (Moustakas, 1994). The individual textural descriptions included the verbatim responses of each participant relevant to the research questions.

### **Imaginative Variations**

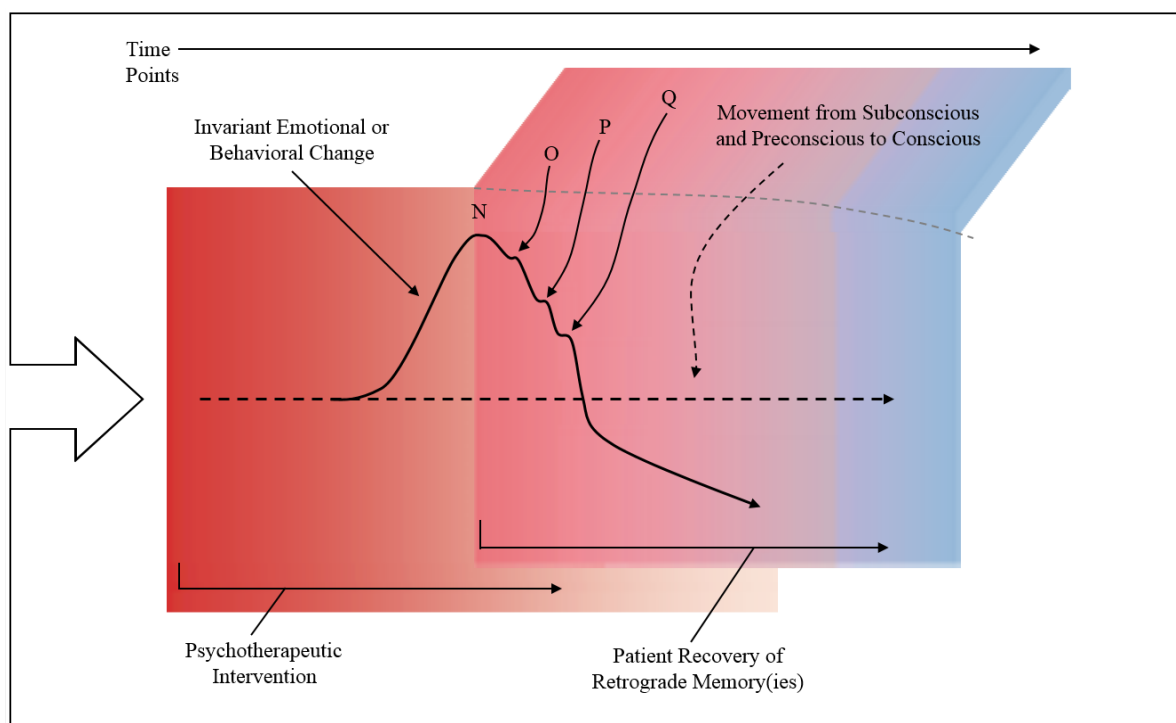
Imaginative variations allowed me to seek possible meanings through the use of imagination and induction, changing the reference point of view, employing reversals and schisms, and approaching the phenomenon inquiry from multiple perspectives, roles, or functions. This action also aids in the reduction in the vast amount of participant experiential data and in doing so solidified the remaining data into their necessary essence (Merriam, 2009; Moustakas, 1994).

### **Essence Statement**

Identification of invariant constituents and use of imaginative variations aid in the synthesis of textural-structural descriptions which form a textural-structural essence of the phenomenon under investigation (Moustakas, 1994). This was critical in this study as the participant responses emphasized both time (from time point N through time point Q on Figures 1 and 3) and *iterations* of emotionality and cognitive function (see Figure 3) when the phenomenon was originally experienced. For purpose of this dissertation, iteration was the recurrence of an activity in order to produce an outcome. Each iteration represented an attempt by the researcher to get the participants to look deeper into their preconsciousness to determine a root experience (versus surface experience). Each recurrence of the activity was a single iteration, and the outcome of each iteration was subsequently the starting point of the next iteration (Merriam, 2009; Timperley, Wilson, Barrar, & Fung, 2013).

The last step of the Modified Stevick-Colaizzi-Keen phenomenological analysis method involved the synthesis of composite textural-structural descriptions. The description represented the totality of sampled participant experiences as a whole group (Moustakas, 1994). For this study, the resulting essence statement that describes possible invariant structures and features of experiences that precede the return of autobiographical memory in individuals in psychological treatment for trauma-related amnesia was:

Trauma memory recall in patients with autobiographical amnesia of such trauma is a complicated phenomenon. Study former patient participants and clinician participants, reporting their observation for their respective former patient, recollected a preconscious to conscious orchestration of startling emotional state change and associated physiological change. Adjoined with the emotion and physical state change were cognitive processes. For each of three iterations investigated in this study, cognitive processes helped the participant cope with the unanticipated emotion state by resolving internalized questions of ‘what’ and ‘why’ they were experiencing each acute emotion/physiological state change preceding their validated trauma memory recall (see Figure 3).

**Figure 3***Conceptualization of Recall in Traumatic Amnesia Patients Following Treatment*

*Note.* This figure is intended as further clarification to Figure 2.

### Evidence of Trustworthiness

#### Credibility

This dissertation required prolonged engagement in the field, taking time to obtain the necessary participants, conduct the pilot study, and perform the main study. Soliciting the 20-person randomly selected participants from the selection pool, and spending at most one and a half hour interviews required roughly 636 working-hours for recruitment and processing study surveys, and 55 hours interviewing and observing participants; interview time did not include debriefing and follow-ups for member checking. The researcher employed triangulation (Creswell, 2013; Mays and Pope, 2000; Patton, 2015; and Shenton, 2004), using different data sources (former patients and clinicians) to

compare and contrast the 20 participant's lived experiences. I protected participant identity and safeguarded their mental and physical wellness; I treated each participant humanely and with respect.

To ensure the adequacy of the data, and its description and interpretation (Frost et al., 2011; Morrow, 2005; Popay et al., 1998), this researcher solicited 34 agencies listed in the Sidran PsychTrauma Information and Resource Service (n.d.) Trauma Treatment Programs list and 4 APA divisions to post/publish the Recruitment Flyer. Recruits adjudged eligible to participate in the research study produced an adequate selection pool, a random and purposeful sample, and a diverse or heterogeneous number of study participants (Greenbank, 2003; Patrick et al., 2011). Member checking the resulting transcript information was conducted reinforcing study methods and data credibility. Involving the participants in critiquing their interview data also facilitated rapport and trust (Brew & Kottler, 2009; Ivey et al., 2014). During member checking, the researcher also presented iterative questions that elicited additional details, which in turn served to confirm the honesty of the participant and the veracity of the study data (Shenton, 2004). The use of multiple interview protocols from un-clustered locations served to satisfy the fundamental corroboration stratagem of credibility. The researcher also monitored saturation via intra- and intercoder reliability thereby recognizing the moment when more qualitative research data would not provide new properties or insights into the patterns or themes (Creswell, 2013; Mason, 2010).

Phenomenology procedures identified the phenomena to study, "bracketing" (Creswell, 2013, p. 80) and collecting data from the participant selection pool. This researcher interpreted and developed both a textured description, i.e., what the

participants experienced, and a structural description, i.e., from the perspective of the other and the world, in order to take a second look at the data. Collecting and analyzing data from a multiple-perspective reinforced verification of the descriptive data, and acted in place of validation and reliability measures.

This researcher maintained an understanding of his role in the inquiry (i.e., reflexivity). Because reflexivity carried an impact beyond introducing biases and values into the process of collecting data, this researcher's background and experiences were monitored and those impacts acknowledged and mitigated by journaling throughout the dissertation journey and the peer debriefing processes.

The researcher conducted peer reviews or debriefings (Creswell, 2013; Creswell, 2014; Roberts, 2010; Rudestam & Newton, 1992; Shenton, 2004) at each stage of the dissertation process. The researcher's approved Dissertation Committee, the URR, and IRB, were pivotal in providing validation that contributed toward maintaining the credibility of the researcher's chosen design, methods, findings, and discussion. These periodic supervisory reviews provided reflective commentaries and comparative conclusions (Shenton, 2004), competing interpretations, and judgements on the adequacy of the data, descriptions, and interpretations (Morrow, 2005; Popay et al., 1998). The reviews also contributed to parallel inquiries related to ethics, reflexivity, bias, and scholarly validation of the research findings (Billups, 2014; Williams & Morrow, 2009).

### **Transferability**

Using the stratagem of *thick description*, the researcher presented rich details that described the movements and character of the World, the Other, and the Self. Such thick description also described the emerging patterns and schemes gleaned from the data. The



achieved transferability should allow fellow researchers the ability to repeat the study within a broader population (Shenton, 2004; Shosha, 2012).

The study also set boundaries. At the onset of the study, and repeatedly during its process, the researcher reiterated to the study participants the total number of participants and contributors involved, the data collection methods, the data collection duration, the projected interview session length, and the time required to assimilate data from all participant interview sites. Explanations of the scope and boundaries of this study may aid other researchers to transfer or replicate the study. Variety in participant selection also ensured transferability.

### **Dependability**

This study achieved dependability by conducting an independent pilot study, establishing thorough documentation and procedural detail, including the inclusion/exclusion criteria, and inquiry audits. Supervisory reviews by the Dissertation Committee, URR, and IRB scrutinized this study's phenomenological processes and collected data to weigh the accuracy and gauge whether the data supported the conclusions, judgments, and outcomes.

### **Confirmability**

This researcher was instilled with three core values: integrity above all else, service to others before self-interest, and excellence in all he does (USAF, 1997). These core values continued to influence this researcher's post-service social and ethical principles and serve as lifetime credentials.

The researcher employed audit trails (Billups, 2014; Lincoln & Guba, 1985), which highlighted each step or action the researcher took with data analysis,

demonstrated rationales for the decisions made during the respective stages of data analysis, including those for ensuring accuracy in the findings. The researcher created an adequate account of the methods and data analysis process by journaling and building a database of files that recorded all changes made to the raw data, data-reduction and data-analysis products, data-reconstruction and synthesis products, process notes, materials relating to aims and characters, and tool development information (Mays & Pope, 2000; Patton, 2015). The audit trail of electronic file names remained virtually unchanged, except that they were date-stamped, and affixed with a comment or notation blocks where changes were made. Software also tracked changes. This technique of accounting for changes to the research study documentation ensured that the study exists independently, such that another trained researcher could evaluate the data in the same way and reach the same or similar conclusions.

The study employed intracoder reliability via several independent coding sessions (Saldana, 2016) for each interview transcript. This researcher hand-coded each transcript at least twice (Shosha, 2012), each time listening to the audio recording anew. This researcher also used Nuance's Dragon Naturally Speaking (v15.0) and QSR International's NVivo Transcription suite to produce other transcript versions of the same interview materials. Hand transcribing was completed first so that the electronically generated transcriptions could not influence this researcher. This researcher coded the manual transcriptions by using the categories of data indicated in Table 4. These categories illustrated the hierarchy of coding. NVivo version 11.0 (QSR, 2015) provided an additional level of intracoding reliability that organized emerging patterns and themes,

and supported coding efforts within both the manually produced and electronically generated transcripts.

The researcher ensured intercoder reliability via external examination, through peer reviews, debriefings, and inquiry audits. The Dissertation Committee, URR, and IRB was crucial in providing validation. The approval of all three bodies contributed to the confirmability of data collection methodology, the content and context of study findings, and the tables and figures representing those results.

### **Results**

This study investigated two specific research questions:

RQ1. What were the experiences of living that proceed traumatic memory-return following psychotherapy as an adult with autobiographical amnesia?

RQ2. What were the experiences of living as a clinician of an adult that proceed traumatic memory-return following psychotherapy of an adult patient with autobiographical amnesia?

Qualitative interview protocols (Appendix A) were developed with open-ended questions based on each participant's research role. The *Qualitative Interview Protocol (Former Patient)* was developed to answer RQ1 while *Qualitative Interview Protocol (Clinician)* to answer RQ2. Each protocol was designed to explore the experiences of the respective study participant relative to the phenomenological domains of the World, the Other, and the Self moments before their trauma memory recall. Each participant's interview responses provided participants a voice in this study. A breakdown of constituent aspects for each cited phenomenological domain was elaborated in Appendix C, Expanded List of Codes. The collective of extracted and reduced interview responses

totaled 1,480 comments or key words associated with the participant's physicality or behavior. Conversely, 1,058 comments or key words were associated with the participant's emotions, and 426 for cognitive processes suggesting a link between the two as a nominal response to a trauma event (Storbeck & Clore, 2007). From the analyzed invariant elements, three themes emerged. Figure 3 also depicts the following three themes.

### **Theme 1 - Confusion and Anxiety Coupled with Knowing and Problem Solving**

From the analysis, the first theme developed was that all ( $n = 15$ ) participants indicated having the abrupt emergence of confusion (206 mentions, 42.74 percent of responses in this invariant element) and emotional anxiety (95 mentions) lasting from 1 to 5 minutes. A key element of participant emotionality included a description of sensitivity to external stimuli (43 mentions) and disconnection from the therapeutic process (20 mentions).

As a result of experiencing the undesired confusion and anxiety, specific cognitive processes were experienced by participants including weak attention or concentration (24 mentions) and a desire (23 mentions) not to feel and to resolve the origin of the confusion (56 mentions), participants desired to be alone or uninterrupted/distracted (36 mentions) so that they could understand and know (71 mentions) 'what' they were experiencing and 'why' they were experiencing at that particular moment.

All participants reported experiencing predominant avoidant eye movements and being quiet or silent. Collectively, participants remarked on physical tension (anxiety) 76 times (91.57 percent of responses in this invariant element) and changes to their heart rate

and breathing 37 times. Last, all participants remarked that during this 1 to 5 minute period, they experienced posture rigidity, a head tilt (typically away from the therapist) and pressing their hands together in their lap.

**Table 6**

*Breakdown of Major Theme and Invariant Constituents during the First Iterative*

Code	Occurrences	
	Number	Percent
Eyes – Avoidant/Distracted	83	78.31
Mouth – Voice quiet or silent	40	70.20
Tension – Anxiety	76	91.57
Chest (Heart) – Slow/Slowing, weak	17	56.67
Chest (Lungs) – Slow/Slower, deeper, controlled	20	58.93
Posture – Rigid, head tilt, hands pressed	76	40.01
Anxious	95	19.71
Confusion	206	42.74
Sensitivity to senses	43	22.63
Attention	24	11.48
Knowing	71	33.97
Motivation	23	11.00
Problem solving	56	26.79
Disconnected from therapist	20	71.43

*Note.* Codes developed from both clinician and former patient participant responses to the respective qualitative interview protocol.

## **Theme 2 – Grief, Anger or Guilt, and Sadness Coupled with Knowing and Problem**

### **Solving**

From the analysis, the second theme developed was that all participants experienced having an undesired emergence of grief (105 mentions; 22.06% of responses in this invariant element) and emotional anxiety (75 mentions) lasting from 30 seconds to one and a half minutes before their trauma memory recall. Sadness also accompanied their grief (46 mentions). A key invariant element of participant emotionality included,

depending on the origins of their trauma, a description of either anger (36 mentions) or guilt or shame (30 mentions) moments before their trauma memory recall. This was a significant discovery as the presence of guilt or shame and grief, according to the transactional theory of stress and coping (Benight, 2012; Folkman, 1984), suggested that individuals with high resiliency and coping skills would experience guilt or shame and grief as a nominal consequence of experiencing a trauma (Beck et al., 2019; Lancaster & Larsen, 2016; Raz, Shadach, & Levy, 2018; Görg et al., 2019; Robinaugh, & McNally, 2010). For the study participants, who uniquely experienced autobiographical memory amnesia, the trauma emotions preceded the memory recall.

As a result of experiencing the undesired grief and anger or guilt/shame, specific cognitive processes were also experienced by all study participants including understanding or knowing (52 mentions) ‘what’ they were experiencing and ‘why’ they were experiencing at that particular moment. During this period and iteration (depth of exploration) 10 of the 15 participants (66.66 percent) experienced a duality in the attempts to understand ‘why’ they experienced grief and anger or guilt/shame. Initially the 10 participants felt guilt or shame, or anger, depending on the nature of their respective trauma, for not addressing their emotional dilemmas sooner; grief, guilt/shame or anger for wasting time in their lives and for feeling unhappy for so long. After the researcher asked each participant for elaboration of their experiences associated with the second theme, they reported a paradox such that the emotions were driven by the originating trauma; the same emotions were being experienced because they would have occurred if the study participant had the requisite coping skills and not developed

amnesia of the originating traumatizing event (Beck et al., 2019; Raz et al., 2018; Robinaugh, & McNally, 2010).

All participants reported experiencing predominant behaviors including being teary or crying (39 mentions), swallow pattern changes, and looking grief stricken (or respectively guilty or angry). Collectively, all study participants remarked on chills, cold sweats, or general perspiration 83 times (40.31 percent of responses in this invariant element) and changes to their heart rate and breathing 75 times. Last, all participants remarked that during this period, they experienced physical shock and a head tilt (typically toward the therapist) and anxiety persisted but at a reduced intensity (24 mentions).

**Table 7**

*Breakdown of Major Theme and Invariant Constituents during the Second Iterative*

Code	Occurrences	
	Number	Percent
Eyes – Moist, wet, teary, crying	39	39.39
Mouth – Swallow pattern change	15	27.27
Face – Expression change (Anger, grief, shame)	24	57.14
Skin –C. sweats, General sweating/Clammy	83	40.31
Tension – Anxiety	24	66.67
Chest (Heart) – Fast/Speeding, pounding	34	75.56
Chest (Lungs) – Harder/Labored, deeper	41	73.21
Posture – Unresponsive/Shock	76	40.01
Anger	36	7.56
Anxious	75	15.76
Grief/Grieving	105	22.06
Guilt/Shame	30	10.50
Sad	46	9.66
Isolation	36	7.47
Knowing	52	32.10
Problem solving	53	32.72
Thinking	25	11.48

*Note.* Table 6 note applies here.

### **Theme 3 – Excitement and Relief Coupled with Knowing and Remembering**

From the analysis, the third theme developed was that all participants indicated having the subtle realization of the emergence of their respective trauma-related memory (30 mentions, 54.55 percent of responses in this invariant element), excitement (17 mentions, 17 percent of responses in this invariant element) and relief (28 mentions, 28 percent of responses in this invariant element) from the previously experienced negative emotional states seconds (undefined) before their trauma memory recall.

Invariant elements of behavior typified relaxing of prior physical anxiety indicators; the eyes, mouth, facial expressions, vocal tone, posture, gestures, and alike of study participants returned to a nominal state. All participants experienced awareness of their memory recall (16 mentions, 100 percent of responses in this invariant element); however, roughly half (53.45 percent) did not make a verbal statement indicating they had recall until a subsequent treatment session. Additionally two Clinician participants were aware of their respective patient trauma memory recall during the session in which it occurred. Two other Clinician participants were aware of their patient's emotional state change but not the relevance to possible trauma memory recall; they recollected treating their patients for increasing anxiety and waited until the next session to discuss causes for such emotions. The remaining three Clinician participants recollected being surprised by their respective patient's emotional states; the changes in patient emotions and behaviors occurred near the end of their schedule session and were addressed in a subsequent treatment session.

Study participant cognitive processes aided participant awareness that they were experiencing confusion in the first iterative and an emotional change state was a



precursor to other oncoming yet identified emotions. Subsequently during the second iterative, study participant cognitive processes again aided participant awareness and identification that they were experiencing grief and anger (or guilt or shame). These emotions, which typically occur after exposure to a trauma, in study participants preceded the recall of the trauma memory.

**Table 8**

*Breakdown of Major Theme and Invariant Constituents during the Third Iterative*

Code	Occurrences	
	Number	Percent
Eyes – Wide open, staring	14	36.84
Mouth – Smiling, voice louder, speaking faster	15	27.58
Face – Normal	9	33.33
Skin – Warm/Warming	5	29.41
Tension – Relaxed	15	39.47
Chest (Heart) – Slow/Slowing	5	27.75
Chest (Lungs) – Slow/Slowing	4	25.00
Posture – Less restrained, more animated	9	34.62
Excited	17	17.00
Relief	28	28.00
Knowing	52	32.10
Remembering	30	54.55
Felt change	16	100
Verbalized change	31	53.45

*Note.* Table 6 note applies here.

### **Summary/Conclusion**

The purpose of this study was to improve clinicians' understanding of the role played by possible invariant structures and features of experiences that precede the return of autobiographical memory in individuals with trauma-related amnesia in psychological treatment. The two research questions were foundational to this study providing copious data needed to investigate the rich descriptions of the participants lived experiences

associated with trauma memory recall in amnesia patients. The textural-structural descriptions formed a textural-structural essence of the phenomenon under investigation (Moustakas, 1994), critical in this study as the participant responses emphasized both time and depth of emotionality and cognitive function as the phenomenon was originally experienced. The resulting essence statement described invariant structures and features of experiences that precede the return of autobiographical memory in individuals in psychological treatment for trauma-related amnesia.

In Chapter 5, this researcher examines the implementation of the results from this chapter. Additionally, Chapter 5 identifies several limitations of this study and provides recommendations for further research. Last, Chapter 5 includes a discussion of positive social change and methodology implications derived from study results.

## Chapter 5: Discussion, Recommendations, and Conclusions

The purpose of the current study was to improve the understanding of possible invariant structural features of experiences that precede the return of autobiographical memory in individuals with trauma-related amnesia who were in psychological treatment. Transcendental phenomenology is used to give voice to participants who provided rich descriptions of their personal and therapeutic experiences exactly as they lived it. The natural setting in which I collected data, was conducive to a more relaxed atmosphere from which to conduct phenomenological interviews and observations related to the research questions. This study constitutes an extension of the literature on memory recall and for patients with autobiographic memory amnesia. The current study revealed the impact that psychotherapies have on these patients.

The following research questions were developed to address specific aspects for this study:

RQ1: What experiences of living preceded traumatic memory return following psychotherapy as an adult with autobiographical amnesia?

RQ2: What were the experiences of living as a clinician or observer of an adult that preceded traumatic memory return following psychotherapy of an adult patient with autobiographical amnesia?

The textural-structural descriptions found in the current study findings formed a textural-structural essence of the phenomenon (Moustakas, 1994). The resulting essence statement described invariant structures and features of experiences that preceded the return of autobiographical memory in individuals in psychological treatment for trauma-related amnesia. Three themes form the basis of this study findings. Theme 1 describes a

period approximately 1 to 5 minutes before participant's recollection of their recall. Its constituents consisted of an emotional state consistent with confusion and anxiety coupled with cognitive processes of knowing and problem solving. Theme 1 was iterative of Theme 2 that describes a period approximately 30 seconds to approximately 1 and a half minutes before participant's recollection of their trauma memory recall. Its constituents consisted of an emotional state of grief, anger or guilt, and sadness coupled with cognitive processes of knowing and problem solving. Theme 2 was iterative of Theme 3 that describes a period seconds before participant's recollection of their trauma memory recall. Its constituents consisted of an emotional state of excitement and relief coupled with cognitive processes of knowing and remembering. Each theme also included a corresponding pattern of behaviors consistent with the expressed emotional state.

### **Interpretation of the Findings**

I started the current study with the intent of answering a logic question. If the current literature of physiological invariant features (i.e., eye dilation and blink, galvanic response etc.) was linked to memory recall (Figure 1, A-C vertices) and emotion invariant features (i.e., emotion state change) was linked to physiological changes (Figure 1, A-B vertices), then emotion invariant features were linked to physiological changes (vertices C-B). The phenomenological methodology and research questions in the current study addressed the reversibility of the patient's escalation of strategies for coping, like the defense cascade, via completing a course of therapy. Furthermore, during the patient's treatment, representative invariant features related to the cessation of mental illness symptomology arose. In the field of practical therapy, intrusive devices like those

used in theoretical research situations cannot realistically be used on patients to detect eye dilation and blink and alike. The therapist could more readily and unobtrusively detect and interpret changes in their patient's emotional state to indicate the likeliness of respective trauma memory recall.

Patients arrive in therapy with a preconceived unconscious script of events that transpired during and after their originating trauma, albeit diluted or muddied by false realizations and the use of ineffective defense mechanisms. For the former patient participants in the current study, therapy resculpted individual unconscious scripts that accounted for the patient's trauma event. All of the current study participants ( $n = 15$ ) acknowledged the use of cognitive processes to develop realistic understanding and acceptance for the trauma they experienced. In the process, misattribution (Schacter, 2002) or reassigning invariant elements of the repressed or faulty memory occurred. In essence, the rescripted and now validated trauma memory was rebooted and emerged through the sub- and pre-conscious as trauma memory recall. The reconsolidation and revisiting of the trauma memory occurred in the present study former patient participants because they were motivated and receptive, reassessed their respective memory details, and understood what was repressed or faulty memory and what the accurate memory of their original trauma event was.

According to Freud's psychoanalytic theory, the unconscious mind continues to exert an influence on behavior and functioning (Bargh & Morsella, 2008; Freud, 1962, 1966; Olson et al., 2011; Plutchik, 1995; Prochaska & Norcross, 2007; Trull, 2005). In addition to the invariant structures and features previously cited in Chapter 4, it was noteworthy that five of the eight former patient participants (62.50%) reported

experiencing a catharsis during the session in which they accurately recalled their trauma memory. Prior to their catharsis, they felt and simultaneously expressed corresponding physiological changes indicative of a positive meaningful emotional event prior to their corresponding trauma memory recall. Chronological and potential etiology of autobiographical memory return, as a result of psychotherapy, was explained by examination of the stated themes in Chapter 4 as well as with examination of Figure 4.

### **Theme 1 - Confusion and Anxiety Coupled with Knowing and Problem Solving**

At time point O in Figure 4, the former patient participant experienced, while the clinician participant observed, a sudden rise in the emotional and corresponding behavioral invariant elements cited in Table 6. Seven of the eight former patient participants (87.50%) reported experiencing the emotional state change as a dire but undiscernible, and undesired experience. Wanting to develop understanding and resolution stratagem for themselves (i.e., regaining self-control) all of the former patient participants ( $n = 8$ ) initiated the cognitive invariant elements cited in Table 6 to identify ‘what’ they were actually experiencing and ‘why’ they were experiencing it at that moment. Their mental picture of their respective Self was becoming clearer. The realization experienced by five of the eight former patient participants (62.50%) was that they were experiencing confusion and anxiety as a precursor (an emotional buffer) against what they would experience next (in the second iteration).

### **Theme 2 – Grief, Anger or Guilt, and Sadness Coupled with Knowing and Problem Solving**

In essence, the dilemma raised in the first iteration (or first theme) gave rise to a subsequent sudden rise in the emotional and corresponding behavioral invariant elements

cited in Table 7; indicated at time point P in Figure 4. Seven of the eight former patient participants (87.50%) reported experiencing a more specific and intensive emotional state change which was also an undesired experience. Wanting to develop further understanding and resolution of the dilemma, all of the former patient participants ( $n = 8$ ) initiated knowing, problem solving, and thinking cognitive invariant elements cited in Table 7 to identify 'what' they were actually experiencing and 'why' they were experiencing it at that moment. Consequently, at time point P, realization developed for five of the eight former patient participants (62.50%) that two reasons existed to answer their question 'why' they were experiencing intensive emotional state change at that moment. The first was associated with the Self 'here and now' (in the present) and the second associated with the Self 'then and there' (in their respective past when their trauma occurred). Two of eight former patient participants (37.50%) failing to achieve an understanding of their Self, the support of the Other, and their place in the World, attempted to resort to less intensive defense mechanisms (i.e., denial, deflection, etc.) as a means of coping. Their mental picture of their respective Self was becoming even clearer; however, their transition to the final iteration would be delayed. The realization developed by five of the eight former patient participants (62.50%) was that (a) they were experiencing intensive emotional state change at that moment due to current unfolding events, and (b) they were experiencing the intensive emotional state change because they experienced emotional and corresponding behavioral invariant elements cited in Table 7, those elements that were not originally experienced subsequent to their respective trauma event (previously), were now being experienced as a precursor to their trauma memory being recalled.

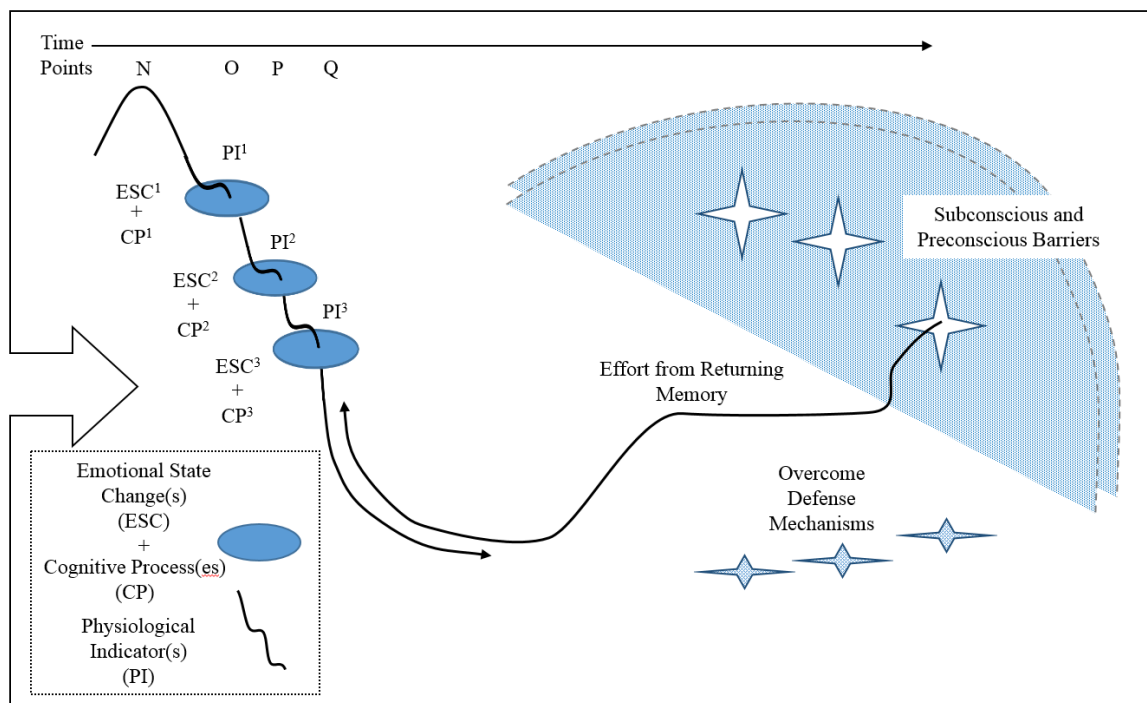
**Theme 3 – Excitement and Relief Coupled with Knowing and Remembering**

Chronologically and etiologically, the impasse raised in the second iteration (or second theme) gave rise to the subsequent fall in the emotional and corresponding behavioral invariant elements cited in Table 7 and a rise to those invariant elements cited in Table 8; indicated at time point Q in Figure 4. All of the former patient participants ultimately achieved recall of their trauma memory; two of eight former patient participants (37.50%) who failed to achieve an understanding of their Self and attempted to resort to less intensive defense mechanisms as a means of coping, achieved recall in a later session. Two of eight former patients (37.50%) made clear statements to their respective therapist during the same session that they had recalled their trauma memories. All of the former patient participants were unclear whether the invariant elements cited in Table 8 preceded trauma memory recall or were subsequent to it. However, the indicated patterns of emotion state change and corresponding behaviors suggest they preceded trauma memory recall.



**Figure 4**

*Elaboration of Recall in Traumatic Amnesia Patients Following Treatment*



*Note.* This figure was intended as additional detail to Figure 3.

### Limitations of the Study

This study focused on participants who reported having traumatic amnesia between December 2015 and December 2018, and the researcher collected their data from January 2, 2020 through December 30, 2020. Although the recommended sample size for a phenomenological study was between nine and 15 participants (Creswell, 2013; Patton, 2015), the selected sample size ( $n = 15$ ) was not representative of the total population of recovering amnesiac patients. Although the source from which recruitment took place was unknown, the resulting majority of participants came from three regional populations (Los Angeles, CA where  $n = 5$ ; Columbia, SC where  $n = 4$ ; and Boston, MA

where  $n = 3$ ); data collection came from few geographically diverse localities across the continental United States.

A loss of objectivity by the researcher was avoided during all phases of this study; thereby, confirmability was maintained. Albeit the researcher had personally experienced the phenomenon under investigation, practicing epoché, journaling, and keeping an open line of communication with the dissertation committee contributed to the researcher maintaining objectivity. The researcher avoided over-identifying with study participants, contrary to the phenomenological epoché. Following the stringent procedures in the current study also countered the limitation (i.e., using semi-structured interviews that minimized leading questions, and member-checking the data to ensure that participants approved their own intentions and meanings). However, the data from two of the Clinician participants lacked objectivity; periodically in the conduct of these two interviews, the participants asked to justify their decisions or interpretations when not asked for.

The current study specifically sought to engage participants who previously experienced and were treated for traumatic autobiographical amnesia. The researcher sought to exclude participants with memory recall dysfunction due to physiological deficits. Participants were also excluded if they had disease effecting memory recall or their memory recall was effected by injection or consumption of prescribed or illicit pharmaceutical substance. The specificity for recruiting in this population and the narrow eligibility criteria contributed to the previously discussed limitation in expediently attaining the desired sample size.

It may become obvious to inquisitive researchers the inherent paradox in researching deficits in memory recall participants. The current study relied on participants who acknowledged their memory shortfalls. Yet the current study asked these participants to recall their experiences of their emotional and cognitive state, and behaviors prior to their recall of a traumatizing event which contributed to their amnesia or loss of memory.

Using a social media video platform was mandated (Clay, 2020; Padala et al., 2020; Subocz, 2020) and efficient (Lo Iacono, Symonds, & Brown, 2016; Oates, 2015; Seitz, 2016) as its use undoubtedly saved the researcher from expending already limited research resources (i.e., money for travel expenses and time). Common internet connection and technical problems (Yuen et al., 2015) were minimal during all interviews. However, much was unobservable (potentially missed) by using a social media video platform, such as body language and activity outside the field of view (Wilson, 2016), and a potential research bias arose. Was the researcher interviewing the actual participant or a poser? The researcher was dissuaded from asking the participant to identify themselves (Subocz, 2020) so the question remained unanswered. Additionally, although the interview was conducted in a naturalistic setting, the interviewer could not detect (due to a limited field of view) or control possible interference or undue influences on the interview location established by the individual participant. Remote video interviewing also produces a disadvantage because there was a less personal connection and such interviews could make some people feel and behave awkwardly; which in turn could affect their recollection and discussion of their recall experiences (2016). Had the interviews been conducted face-to-face in a clinical or neutral natural setting, as

originally planned for, and not the desired location selected by the participant, interview interference and other possible undue influences could have been mitigated (2016).

### **Recommendations**

The recommendations that follow were actionable in that they advocate propositions for policy and practice based on the findings. They provide exact action preparation and follow-on steps to the current study. The current study recommendations also reinforce the principle that scholarly work promulgate new questions as well as answering those in the current study, thus fostering the way for evocative practice and research. Last, recommendations derived from the current study findings describe topics that require tighter scrutiny and that may generate new questions for further study.

#### **Recommendation 1**

The current study should be replicated using a larger geographically separated and diverse sample of participants. According to Creswell (2014), studying phenomenological essence was difficult when the researcher uses a non-diverse sample of study participants. Although one may select all study participants for their experience of a particular phenomenon, as individuals, their experiences vary immeasurably due to their social and cultural backgrounds. In turn, the larger sample could substantiate rich details that describe the movements and constituent elements of the World, psychogenic Other, and the participant Self, and the emerging patterns and schemes gleaned from the data, in order to allow fellow researchers the ability to repeat the study within a broader population.

**Recommendation 2**

The current study should be replicated using face-to-face interviews. Due to the emergence of the 2020-2021 COVID-19 pandemic, all interviews were conducted using only the Skype or Zoom video social media application (Clay, 2020; Padala et al., 2020; Subocz, 2020). Much was unobservable (potentially missed) by using a [remote] social media video platform, such as body language and activity outside the field of view (Wilson, 2016), and the interviewer could not detect (due to a limited field of view) or control possible interference or undue influences on the interview location established by the individual participant. In person interviewing would correct for the disadvantages in using social media or remote interviewing and eliminate the ‘less personal connection’ and contribute positively to participant feeling and behaving more naturally. This in turn would enhance their recollection and discussion of their lived experiences (Iacono, & Symonds, 2016).

**Recommendation 3**

The current study interviewed both former patient participants and clinician participants; however, none of the participants were previously in the same therapeutic relationship. A broader sample consisting of therapeutic partners may be able to clarify the circumstances under which harmful trauma memory recall was expediently identified and mitigated. Such an inquiry into the lived experiences of the clinician and patient in the therapeutic relationship substantiate the constituent elements of the World, the Other, and the participant Self from the current study, and the emerging patterns and schemes gleaned from the data would broaden the applicability of social and policy implementation across the profession.

**Recommendation 4**

Due to the specificity of research questions and participant eligibility criteria, the current study was restricted to a small sample consisting of participants recovering from traumatic autobiographical amnesia. Further studies using a broader participant base with less stringent recall dysfunctions would substantiate rich details that describe the constituent elements of the World, the Other, and the participant Self, and the emerging patterns and schemes gleaned from the data would broaden the applicability of social and policy implementation across the profession.

**Recommendation 5**

The findings of the current study indicated an unawareness among five Clinician participants (71.43%) of behaviors indicative of an emotional state change preceding recall of their patient's trauma memory recall. This resulted in the critical "sensitive period" (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004) for inhibiting or extinguishing (Sevenster et al., 2012; Suzuki et al., 2004) the devastating effects of trauma memory being missed. The current study needs to be replicated, using a mixed research platform, and the resulting findings disseminated in order to fill the existing literature and knowledge gaps. Completing a quantitative or mixed research would be generalizable to other target populations giving the research additional salience and impact on societal and policy practices (Creswell, 2014).

**Implications****Positive Social Change**

The positive social change implications of the current study offer much-needed insights into processes by which clinical psychotherapists could expediently and

accurately identify the return of a patient's autobiographical memory (Ehlers et al., 2014; Gillespie et al., 2002; Skowronski et al., 2004). Further research per this study's recommendation should prove valuable for memory recall deficits other than those due exclusively to trauma or to non-physiological trauma (i.e., psychological or emotional traumatic events). Such clinician observations would present beneficial information about a patient's openness to a quick therapeutic resolution to trauma as revealed through exaggerated or escalated autonomic responses (Scott-Tilley et al., 2010). The same emotional escalation that occurred when a patient was unable to adapt to or cope with trauma, forcing patients like those in the current study to succumb to traumatic amnesia, also occur like a signpost signaling the patient's readiness to recall their originating trauma memory.

The significance and positive social change implications of the current study include a list of emotional invariant structural features that would aid the clinician in recognizing the patients' returning autobiographical memory. This change, in turn, would assist in reduction the total therapeutic duration and lessening any sudden or unexpected patient psychological or emotional trauma realization (i.e., reliving the traumatic memory) which contributed to the patient's original retrograde amnesia. Such a realization would promote an expedient and effective psychological (treatment) adjustment of memory deficit patients during the "sensitive period" (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004) when the emotional effects of disturbing, upsetting, or distressing memory could be diminished or extinguished.

### **Method Implication**

There were several positive methodological implications associated with the current study, but one stands out: the study findings provide valuable insight into processes by which psychotherapists could rapidly and accurately identify the return of patients' autobiographical memories, if the latter were lost due to non-physiological trauma. Rapid identification and treatment during the "sensitive period" (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004) can help steer the clinician to continue with or change the currently applied psychotherapy. During the current study five of the seven clinician participants (71.43%) addressed adjusting their course of treatment to address their patient's current emotional escalation (i.e., anxiety, grief, shame, anger). However, they also indicated that they weren't available or capable of addressing the source for the emotional escalation (i.e., the emotion invariant or behavior invariant features), possibly using an alternate therapy suited for addressing past trauma, until a subsequent session (reported typically as a week later).

### **Theory Implications**

In the Memory Reconsolidation Theory (Barrett & Sherry, 2012; Breedlove & Watson, 2013; Carlson, 2010) the process of returning memory connects to a steady, long-term condition following exposure to a perceived stressful event. This stressful, even traumatic, event may affect the traumatized individual, who may be unable or unwilling to cope due to the event's severity, successive exposures, and their individual resilience (Beck et al., 2019; Raz et al., 2018; Robinaugh, & McNally, 2010). In the current study six of the eight former patient participants (75%) experienced a duality associated with their felt guilt or shame, or anger, depending on the nature of their



respective trauma. The source of the emotion duality was chronologically driven by the originating trauma and the same emotions being experienced due to current therapeutic progress. This duality could be explained by the Memory Reconsolidation Theory as the foundational trauma memory attempted to reemerge after the former patient participant eliminated or reduced their subconscious use of defense mechanisms and gained insight and acceptance for what happened in the past while living in the present.

Multiple Trace Theory (MTT) (Nadel et al., 2007) suggests that some memories that were reactivated become reinforced, while others were allowed to fade or be forgotten. For this reason clinicians should become aware of when their patient was capable or in the process of recalling a trauma memory (i.e., experiencing the patients invariant emotions and behaviors indicating recall) before the devastating affect impacts the patients ability to copy, accept, and heal.

Transactional Theory of Stress and Coping (Lazarus, 1966; Lazarus & Folkman, 1984) outlines the stress response process and coping behaviors, the individual's strategies for coping with difficult or traumatic settings, and potential biopsychosocial reactions. This theory also focuses on how individuals instigate specific coping or defense strategies based on their transactional appraisals, including seeking mental health services. All of the clinician participants ( $n = 7$ ) reported that one of their therapeutic goals for their respective patient, was to eliminate or reduce their patients reliance on using defense mechanisms in lieu of developing coping skills, resilience, understanding and acceptance. Unfortunately five of the clinician participants (71.43%) treated patient symptomology based on the premise of 'here and now' and ignored the psychodynamics associated with the potential impacts of the originating traumatic event, 'then and there'.

Transactional Theory of Stress and Coping appears to address the former and neglects impetus on the latter.

Terror Management Theory (Greenberg et al., 1986) argues that individuals implement specific psychological mechanisms to adapt or cope with their knowledge of the inevitability of death (Greenberg et al., 2007; Landau et al., 2007). The former patient participants in this study faced a juxtaposition where they possess an instinctive desire for continued life, and they developed self-awareness of the inevitability of their death. The duality created impairments which were subsequently balanced by the use of defense mechanisms culminating in amnesia. As the former patient participants progress in their respective course of treatments, the defense mechanisms were weakened or eliminated precipitating another duality for the patient. In attempting to understand their living experience of trauma the typified emotions cited as outcomes for exposure to trauma (i.e., anger, grief, guilt or shame, and sadness) were initially explained due to their present, here-and-now responses. However, all of these participants developed a paradoxical explanation for their emotions and behavior prior to their trauma memory recall as living through the emotion that they denied or repressed during the inception of the exposure to their trauma.

Trauma Theory (McNally, 2003; McNally, 2005; Sotgiu & Mormont, 2008) suggests that the individual behavioral and emotional responses to a trauma were dependent on the type of trauma (i.e., direct exposure or involvement, or indirect natural disaster or act of God, etc.) and the individual's perceived level of helplessness and control during the event. Although the background descriptions of the participant's trauma were not asked for in completing the Qualitative Interview Protocol, participants

volunteered partial narratives indicating the type of trauma they went through. Trauma Theory suggested that typical emotional outcomes of trauma experiences in persons with nominal recall was fear, anger, guilt, grief, or shame (Lancaster & Larsen, 2016). These same emotions were evidenced as the invariant emotional features in the current study. A pivotal difference between the predicted consequences of a trauma in the Trauma Theory and the current study was the participant's ability to recall the trauma event and the order of the event, the emotional consequences of the event, and the consolidations of the memory. In the current study, invariant elements of behavior and emotion were experienced prior to the recall of the trauma memory; versus re-experiencing the trauma through trauma memory recall and then experiencing the behaviors and emotions relative to the participant's perceived level of helplessness and control.

In terms of Tolman's (1948) cognitive map research and Nadel and colleagues (2007) MTT research, just as the experience of a traumatic event may create a negative landmark in consciousness, i.e., the memory of a traumatic event becoming reconsolidated, when the inability to cope contributes to the employment of defense mechanisms, and was understood and reconciled through therapy, a new landmark (or emotional buffer) was formed (Rieber & Salzinger, 2013; Tolman & Honzik, 1930). In terms of the current study, just prior to retrieving or reactivating the trauma memory, new landmarks were emplaced, which both strengthen and change that memory trace, making the details of the event more accessible. In the current study, this process occurred through reversing the chronology and etiology leading back to the trauma memory and the emotional and behavioral invariant elements repeatedly cushioned the original trace or formed a new, thereby reversing the sequence or iterations (Nadel et al., 2007).

### **Concept Implications**

Affect-Regulation Hypothesis states that the conflicted or traumatized individual forms evasion or avoidance schemes to regulate their negative emotions (Izard, 2009; Williams et al., 2007; Williams, 1969). As the current study former patient participants progressed through therapy, their defense mechanism became no longer necessary and the respective participants experienced temporary emotion deregulation patterns embodied by the chronologic and etiologic themes cited in Chapter 4. Previously, the former patient participant's memory retrieval began to elicit undesired or emotionally unfathomable event-specific details. The therapy received by the former patient participants corrected the process of misattribution (Schacter, 2002) and reassigned invariant elements formerly assigned to the repressed or faulty memory to reflect the validated trauma memory.

Facial Feedback Hypothesis (Darwin, 1872; Hazem et al., 2017; Peters & Kashima, 2015; Veenstra et al., 2016) James, 1950) was supported by the current study findings. The former patient participants facial movement, as well as postures and gestures, did broadcast their emotional experiences. The participant's unrestricted conscious invariant behavioral elements corresponding to their emotional state intensified it, while they conversely attempted to repress all outward emotional signals to diminish the former patient participant's emotions (Darwin, 1872; James, 1950). In turn, the former patient participant's facial expressions affected their Self, via external conscious or internal subconscious feedback (Hazem et al., 2017; Peters & Kashima, 2015; Veenstra et al., 2016).

Trauma Hypothesis (Moore & Zoellner, 2007; Williams, 1969), substantiated in the current study, suggested that patients developed overgeneralization as a functional reaction when they first encountered trauma as a means to circumventing uncomfortable or distressing emotions. The avoidance reaction was accomplished by three of eight (37.50%) former patient participants in the current study by use of the overgeneralization and by discontinuing autobiographical memory retrieval, before recall or reconsolidation of a particular event could be retrieved.

### **Empirical Implication**

The aforementioned theories and concepts in the past collectively had too weakly-linked associations, but with the transitive law and the findings of the current study, the vertices bond become empirically stronger. The theoretical foundations contribute to the transitive law cited in Figure 1, where vertex A (invariant features of behavior listed in tables 6, 7, and 8) was indicative to vertex C (invariant features of trauma memory recall listed in the same tables). Conversely, the conceptual foundations contribute to the transitive law cited in Figure 1, where vertex B (invariant features of emotional state change listed in tables 6, 7, and 8) was indicative to vertex C (invariant features of trauma memory recall listed in the same tables). Therefore, the three vertices indicated in Figure 1 become empirically connected and the indicated theory and concept literature was further substantiated.

### **Reflections**

Undertaking this research study has been an invaluable learning experience. The current study endeavor garnered this researcher understanding of the nature of phenomenological research and the associated processes. Though this researcher was

patient, he also learned that absolutes in research were not guaranteed, that theory and practice (process) do not fit neatly into actionable categories, and that research itself could be tedious and thought provoking; however the consequence of such an endeavor, for this researcher, was immensely invigorating and fulfilling. This research study has provided knowledge and insight which have helped this researcher scrutinize his own professional ideals, and strategies for possible changes to his future professional career.

As a student and researcher, completing the current study has been like ending a long and challenging journey. This researcher did not have any preconceived beliefs about what the findings would be. But he knew implementing the recruitment process would be difficult. An axiom emerged through conducting the current study: it was one thing to see a person's shoes from across a room, but another thing to experience his life from being in those shoes. Although the current study could have been more easily conceived and planned as a quantitative study, it was envisaged, planned and implemented first as a qualitative phenomenology because of the nature of the study and how the researcher fervently believed that emotionally invariant structural features might impact the reconsolidation of autobiographical memory. The current study's findings about emotionally invariant structural features in turn provides support for patients to complete successfully a psychotherapeutic treatment or intervention for treating their trauma memory.

Completing a purposeful and impactful study has been meaningful and fulfilling to this researcher. The findings of the current study (Chapter 4) determined that clinicians may not be aware of such invariant structures and features of patient experiences that precede the return of their autobiographical trauma memory (see tables 5 through 8). The

current qualitative phenomenological study could, therefore, fill the knowledge and literature gaps and improve clinicians' understanding of the role played by possible invariant structures and features ensuring an effective treatment for trauma memory during the sensitive period. Determining that the patient reconsolidated their traumatic memory in a timely manner would prompt an effective treatment adjustment for patients during the "sensitive period" (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004) when memories of traumatic events could be influenced by strengthened traumatic memory extinction.

### **Conclusions**

The current study explored the process of trauma memory recall in former amnesia participants. The two research questions were foundational to this study providing copious data needed to investigate the rich descriptions of the 15 participants' lived experiences associated with trauma memory recall in amnesia patients. The resulting textural-structural descriptions formed a textural-structural essence for the phenomenon being studied (Moustakas, 1994), critical in this study as the participant responses emphasized both time and depth of emotionality and cognitive function as the phenomenon was originally experienced. The resulting essence statement described invariant structures and features of experiences that precede the return of autobiographical memory in individuals in psychological treatment for trauma-related amnesia. From the analyzed invariant elements, three themes (or iterations) emerged which confirmed the association between the physiological features, changing emotional states, and the trauma memory return in the study participants.

The positive social change implications of the current study offer much-needed insights into processes by which clinical psychotherapists could expediently and accurately identify the return of a patient's autobiographical memory (Ehlers et al., 2014; Gillespie et al., 2002; Skowronski et al., 2004). The identification and understanding of the trauma patient's emotional, cognitive and behavioral invariant structural features that would aid the clinician in recognizing the patients' returning autobiographical memory. This change, in turn, would assist in reduction the total therapeutic duration and lessening any sudden or unexpected patient psychological or emotional trauma realization (i.e., reliving the traumatic memory). Such a realization would also promote an expedient and effective psychological (treatment) adjustment for trauma patients during the "sensitive period" (Dunlap et al., 2009; Merlo et al., 2014; Suzuki et al., 2004) when the emotional effects of disturbing, upsetting, or distressing memory could be diminished or extinguished.



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## Appendix A: Qualitative Interview Protocols

*Qualitative Interview Protocol (Former Patient)*

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**Instructions:****Participant Number: 0001**

A single individual researcher will be interviewing you and other participants whose responses will contribute to the study. As you know, your participation is voluntary. If I ask you a question that you don't want to answer, or if you need to stop the interview at any time, just let me know.

I will be recording (audio only) the interview and will also be taking some notes. If I write something down, it does not necessarily indicate anything bad or negative in your response. When the interview is finished, I will need some time to create a written transcript of the notes and the audio recording. I will share all notes with you recorded from your interview, so you can look at them, review them, and make corrections. Your feedback will really help the researcher make sure that he (or I) really captured what it is you wanted to say.

Being in this type of study involves some risk of the moderate discomforts that can be encountered in daily life, such as discussing what you experienced in your daily life or in a psychotherapy session. Being in this study would not pose risk to your safety or wellbeing.

This study may be published, and in the publication, I won't use any of part of your name, identifying information, or any of the other participants voiced during the interview. Even if I use direct quotes, I'll use pseudonyms or the participant number. And it also might be presented in conferences and professional meetings, but your privacy will be observed.

At this time do you have any questions?

The duration of this interview is approximately one to one and a half hours using the planned seven questions. With the allotted time in mind, I ask that you be as thorough as possible; remember there are no right or wrong answers. I may ask iterative or follow-up questions; however, we won't go beyond that time unless you wish to do so.

You are asked to provide a small amount of demographic information (age, sex, location) to the researcher in order to help the study researcher get a better understanding of the demographics of all the participants in this study. After providing that information you will be verbally asked to provide your knowledge and experiences related to the seven questions. Follow-up questions may be added depending on your responses in order to alleviate any research(er) questions and to provide clarifications to your responses. The researcher will conclude the interview by asking you if you have any additional

information not covered by the oral questions and provide you an additional opportunity to ask questions.

Some questions may appear to be repeated or very similar to previous questions; please do your best with the repetition. And remember, there are no right or wrong answers. It is crucial that you answer each question from the perspective of what feeling you currently are experiencing or have experienced between today and the last six months. Likewise, the questions are aimed at determining emerging emotions due to your mental processes and not due to external or environmental factors.

Again, thank you for taking part in this qualitative research study.

Date: Month Day, 2021 Interviewer: Burch, Daniel K., Sr.  
 Times: hh : mm AM/PM – hh : mm AM/PM **Participant Number: 0001**  
 Type: In-Person / Telephone / Email, Inst Messaging / Chat / Skype / Other

Descriptive Notes	Reflective Notes
Title Nature of the research project	Invariant Structural Features of Retrograde Amnesia Affected Memory: A Phenomenological Study  Phenomenological qualitative study of patients who have experienced TE that subsequently resulted in their experiencing AM. Looking not at the event but your observations of what it looks like just prior to patient getting their memory back.
<p><b>Before participant arrival:</b>            Attempt to note the approximate time durations within which specific observations are made.</p> <p><b>Physical setting:</b>            Describe in rich detail what it looks like, sounds like, and any other details. Record what you know about the participants and their roles.</p> <p><b>The Person/People:</b>            How do they interact? What are they wearing? What are they saying?            What does their body language tell you?</p> <p><b>The Action:</b>            What happens? What is the sequence?</p> <p><b>Location &amp; Directions</b> of interviewer and interviewee (Draw figure if necessary)</p>	In absence of observer, use this sheet.

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Descriptive Notes	Reflective Notes
<p><b>Pre interview preparation (Participant is at hand):</b></p> <ul style="list-style-type: none"> <li>• Thank you again for taking part in this qualitative research study.</li> <li>• [Remind participant about] Privacy, confidentiality, and informed consent. Reliability of the study results depends on their being forthright, present, open, and detailed in their responses.</li> <li>• Explain why their participation is important.</li> <li>• <i>Introduce yourself.</i> Explain why this study is important to you. Critical to establish rapport and empathy.</li> <li>• Ask participant if they have <i>any questions</i> that can better put them at ease.</li> <li>• Ask participant if they <i>feel alright</i> and are <i>ready to start</i>.</li> <li>• During the first minutes of the interview, <i>use guided imagery</i> to take the participant back in time and to the session (or conversation) where they realized they were remembering their traumatizing event.</li> <li>• <b>DO NOT go any further forward.</b> Take a few steps backward. You are still relaxed but remembering that session (or conversation). You are here now! And there are no threats or fears for you to face! <i>You are safe here!</i></li> </ul>	

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions:</b></p> <ul style="list-style-type: none"> <li>• <i>Imagine</i> that you at back at that session (or conversation) where and when you recalled the details of your traumatic event. Remember as a bystander looking at yourself, remembering that session (or conversation), taking in the surroundings like a deep breath of refreshing air. Nothing there can hurt you. You have no fears worries as you are just a bystander. You are safe!</li> <li>• If it helps you remember, <i>close your eyes</i> for a moment and take yourself back to that day right before you remembered getting your memory back.</li> </ul> <p>1a. Tell me about what details do you remember about the room (<i>the world</i>)? Use your hand and point to everything you remember about objects and their locations in the room, the colors, the warmth or chill in the room. What you can remember about the smells and the sounds?</p> <p><b>(If no response after two minutes ask question 1b).</b></p>	<p>Questions must flow and be natural and calming!</p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>1b. How did you feel being in the room again?</p> <p><b>(If no response after two minutes ask question 1c).</b></p> <p>1c. What do you recall about anyone else (<i>the other</i>) in the room?</p> <p><b>(If no response after two minutes ask question 1d).</b></p> <p>1d. How did you feel being in the room again with _____ (person or persons being described)?</p> <p><b>(If no response after two minutes ask question 2a).</b></p> <p>-----</p> <p>2a. What do you recall you were doing (<i>behavior</i>) right before OR as you were getting your memory back ... NOT the memory of the event but right before that?</p> <p><b>(If no response after two minutes ask question 2b).</b></p>	<p>Questions must flow and be natural and calming!</p> <p>-----</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>2b. What can you recall was going on to you at the moment?</p> <p><b>(If no response after two minutes ask question 2c).</b></p> <p>2c. What can you recall about what was happening to your <i>eyes</i> (focused or locked, blurred vision, eyes averted, much blinking, crying)?</p> <p><b>(If no response after two minutes ask question 2d).</b></p> <p>2d. How does your <i>skin</i> feel (hot, cold, clammy, dry, itchy, tingling)</p> <p><b>(If no response after two minutes ask question 2e).</b></p> <p>2e. What sounds or noises are you hearing (voices or speech, tinnitus, other noises) right before you think you are remembering that memory.</p> <p><b>(If no response after two minutes ask question 2f).</b></p>	<p>Questions must flow and be natural and calming!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (<i>cont.</i>):</b></p> <ul style="list-style-type: none"> <li>• Take a deep breath or two. You can now easily remember your surrounds of that single day (or multiple days) in great details.</li> <li>• Continue to breath. Feel your heart beating; its calming isn't it? You can feel yourself swallowing in preparation of remembering more. You can now easily remember all of the individuals in the room with you.</li> <li>• I want you to imagine that you are going deeper ... deeper ... deeper into your mind. You can see your thoughts (<i>cognitions</i>); only you can remember and see your thoughts for what you were thinking was happening that day.</li> </ul> <p>3. How would you describe what you are remembering during that session (or conversation) right before you realized you have your memory back?</p> <p><b>(If no response after five minutes ask question 4).</b></p>	<p>Questions must flow and be natural and calming!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>4. If you could tell me your story about that day, or that hour, or if you can do it, that minute you realized something special was happening to you. What would your story be?</p> <ul style="list-style-type: none"> <li>• That would be really helpful to me, do you have some stories like that?</li> </ul> <p><b>(If no response after five minutes ask question 5).</b></p>	<p>Questions must flow and be natural and calming!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>5a. What thoughts are going through you?  (If no response after three minutes ask question 5b).</p> <p>5b. What views or reflections, what beliefs and thoughts are going on in your mind?</p> <ul style="list-style-type: none"> <li>• Imagine that you are going still deeper ... deeper ... deeper into your mind. You can see your thoughts (<i>cognitions</i>); only you can remember those thoughts. Only you can see your thoughts for what you were thinking was happening that day.</li> </ul> <p>(If no response after five minutes ask question 5c).</p> <p>5c. What views or reflections, what beliefs and thoughts are going on in your mind?</p> <p>(If no response after five minutes ask question 6).</p>	<p>Questions must flow and be natural and calming!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>6a. The memory is on the tip of your tongue. But STOP, step backward. What are you thinking right before that? What thoughts were in your mind right before that?</p> <p><b>(If no response after five minutes ask question 6b).</b></p> <p>6b. What were you thinking about right before that? What thoughts were in your soul right before that?</p> <p><b>(If no response after five minutes ask question 6c).</b></p> <ul style="list-style-type: none"> <li>Imagine that you are going still deeper ... deeper ... deeper into the center of your mind. You are at the most primitive parts of your mind. You can see your primordial thoughts (<i>cognitions</i>); only you can remember those thoughts. Only you can see your thoughts for what you were thinking was happening that day.</li> </ul>	<p>Questions must flow and be natural and calming!</p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>6c. What are you feeling (<i>emotion</i>) right before you think you are remembering that memory? What emotions are you feeling that make this day different from the others that you have spent here?</p> <p><b>(If no response after five minutes ask question 7).</b></p> <p>-----</p> <p>7a. Please describe what feelings were going on or what you think was going just prior to you <i>getting</i> your memory back.</p> <p><b>(If no response after two minutes ask question 7b).</b></p> <p>7b. Please describe any experiences you can remember now associated with your physical body, your ability to speak and hear, to touch or smell or taste something.</p> <p><b>(If no response after two minutes ask question 7c).</b></p>	<p>-----</p> <p>Questions must flow and be natural and calming!</p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>7c. Please describe any emotions you remembered experiencing at the start of that day.</p> <p><b>(If no response after two minutes ask question 7d).</b></p> <p>7d. Please describe any emotions you remembered experiencing at the start of your session on that day.</p> <p><b>(If no response after two minutes ask question 7e).</b></p> <p>7e. What did you feel by the time the session was over?</p> <p><b>(If no response after three minutes ask question probing question).</b></p> <p><b>(If no response after three minutes proceed to debriefing on next page).</b></p>	

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Descriptive Notes	Reflective Notes
<p><b>Interview Debriefing.</b></p> <ul style="list-style-type: none"> <li>• Thank you again for taking part in this qualitative research study.</li> <li>• [Remind participant about] Privacy, confidentiality and informed consent.</li> <li>• [Remind participant about] Time is necessary to create transcript from the audio recording.</li> <li>• [Remind participant that] Your feedback will help the researcher make sure that he/she really captured what it is you wanted to say.</li> <li>• [Remind participant that] After you validate the context of the transcript, they may then receive their incentive for completing their participation.</li> </ul>	

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<b>Descriptive Notes</b>	<b>Reflective Notes</b>
Self-Evaluation:	Self-disclosure and reflexivity.

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*Qualitative Interview Protocol (Clinician)*

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**Instructions:****Participant Number: 0001**

I will be interviewing you and other clinicians whose responses will contribute to the study. As you know, your participation is voluntary. If I ask you a question that you don't want to answer, or if you need to stop the interview at any time, just let me know. Questions will not be about decisions you have made during treatment sessions or relative to treatment/intervention selections. Your recollection of your observations of specific patients during sessions is of paramount importance.

I will be recording the interview, and will also be taking some notes; when I write something down it does not necessarily indicate anything bad or negative in your response. When the interview is finished, I will need some time to create a written transcript of the notes and the audio recording. I will share all notes with you recorded from your interview, so you can look at them, review them, and make any corrections. Your feedback will really help me make sure that I really captured what it is you wanted to say.

This study may be published, and in the publication, I won't use any of part of your name, identifying information, or any of the other participants voiced during the interview. Even if I use direct quotes, I'll use pseudonyms or the participant number. And it also might be presented in conferences and professional meetings, but your confidentiality and privacy will be observed.

At this time do you have any questions?

The duration of this interview is approximately one to one and a half hours using eight planned questions. With the allotted time in mind, we ask that you be as thorough as possible and reply to each study question; remember there are no right or wrong answers. I won't go beyond that time unless you wish to do so.

You are asked to provide a small amount of demographic information (age, sex, location) to the researcher in order to help the study researcher get a better understanding of the demographics of all the participants in this study. After providing that information you will be verbally asked to provide your knowledge and experiences related to the eight questions. Follow-up questions may be added depending on your responses in order to alleviate any research(er) questions and to provide clarifications to your responses. The researcher will conclude the interview by asking you if you have any additional information not covered by the oral questions and provide you an additional opportunity to ask questions.

Some questions may appear to be repeated or very similar to previous questions; please do your best with the repetitiveness. And remember, there are no right or wrong answers. It is crucial that you answer each question from the perspective of what you remembered

seeing or hearing the former patient experienced just prior to their trauma memory returning and what was the treatment setting. Likewise, the questions are aimed at determining emerging emotions due to your mental processes and not due to external or environmental factors.

Again, thank you for taking part in this qualitative research study.

Date: Month Day, 2021 Interviewer: Burch, Daniel K., Sr.  
 Times: hh : mm AM/PM – hh : mm AM/PM **Participant Number: 0001**  
 Type: In-Person / Telephone / Email, Inst Messaging / Chat / Skype / Other

Descriptive Notes	Reflective Notes
<p>Title Nature of the research project</p>	<p>Invariant Structural Features of Retrograde Amnesia Affected Memory: A Phenomenological Study</p> <p>Phenomenological qualitative study of patients who have experienced TE that subsequently resulted in their experiencing AM amnesia.</p>
<p><b>Before participant arrival:</b> Attempt to note the approximate time durations within which specific observations are made.</p> <p><b>Physical setting:</b> Describe in thick rich detail what it looks like, sounds like, and any other details. Record what you know about the participants and their roles.</p> <p><b>The Person/People:</b> How do they interact? What are they wearing? What are they saying? What does their body language tell you?</p> <p><b>The Action:</b> What happens? What is the sequence?</p> <p><b>Location &amp; Directions</b> of interviewer and interviewee (Draw figure if necessary)</p>	<p>In absence of observer, use this sheet.</p>

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Descriptive Notes	Reflective Notes
<p><b>Pre interview preparation (Participant is at hand):</b></p> <ul style="list-style-type: none"> <li>• Thank you again for taking part in this qualitative research study.</li> <li>• [Remind participant about] Privacy, confidentiality and informed consent. Reliability of the study results depends on their being forthright, present, and detailed in their responses.</li> <li>• Explain why their participation is important.</li> <li>• Introduce yourself. Explain why this study is important to you. Critical to establish rapport and empathy.</li> <li>• Ask participant if they have any questions that can better put them at ease.</li> <li>• Ask participant if they feel alright and are ready to start.</li> <li>• During the first minutes of the interview, <i>use guided imagery</i>, as necessary, to take the participant back in time and to the session (or conversation) where they realized that their patient was remembering their traumatizing event.</li> </ul>	

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Clinician's Former Patient Demographic Information	Reflective Notes	
Please enter your response to the right of the study question.	Possible Options	Response
What are the initials of the former patient that you will be describing?		
What is the person's gender? (Mark one)	Male	
	Female	
	Other	
	Prefer Not To Say	
What is their age (in years)? (Annotate your age)		
What is their ethnicity? (Mark all that apply.)	White	
	Black / African American	
	American Indian or Alaska Native	
	Asian	
	Native Hawaiian or Other Pacific Islander	
	Prefer Not To Say	
What was/is their current occupation?		

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>2. Please describe what you feel is occurring or what you have seen occurring from your patient with traumatic amnesia <i>attempting</i> to get their memory back.</p> <p><b>(If no response after three minutes ask question probing question).</b></p> <p><b>(If no response after three minutes more ask question 3).</b></p>	<p>Questions must flow and be natural and calming! Seek rich detailed descriptions!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>3. Please describe what you feel is going on or what you have seen going on from your patient when he (or she) is <i>getting</i> their memory back.</p> <p><b>(If no response after three minutes ask question probing question).</b></p> <p><b>(If no response after three minutes more ask question 4).</b></p>	<p>Questions must flow and be natural and calming! Seek rich detailed descriptions!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>4. And if you could tell me a story about one specific patient you treated for memory loss due to a previous traumatizing event, what do you remember about his (or her) <i>behavior</i>, or <i>demeanor</i>, or changes to his (or her) <i>emotion</i> or <i>physicality</i> when you believe he (or she) was <i>on the cusp</i> of achieving recall of their previous traumatizing event? That would be really helpful to me. Do you have some stories like that?</p> <p><b>If no response after five minutes ask question probing question).</b></p> <p><b>(If no response after three minutes more ask question 5).</b></p>	<p>Questions must flow and be natural and calming! Seek rich detailed descriptions!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>5a. What makes him (or her) unique or different from another patient you recall getting their memory back?</p> <p><b>If no response after five minutes ask question 5b).</b></p> <p>5b. What does it look like to you when he (or she) is getting their memory back? What is unique or different from another patient you recall getting their memory back?</p> <p><b>(If no response after three minutes more ask question 6).</b></p>	<p>Questions must flow and be natural and calming! Seek rich detailed descriptions!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>6a. How would you define the definitive moment when you realize your patient has gotten his (or her) memory back?</p> <p><b>If no response after five minutes ask question 6b).</b></p> <p>6b. Why has this person recovered their memory of a previously traumatizing event?</p> <p><b>If no response after five minutes ask question 6c).</b></p> <p>6c. On the occasion of your patient getting his (or her) memory back, what were the circumstances you feel faced by this person recalling their memory of the traumatic event?</p> <p><b>(If a former or current patient of this clinician has given his or her permission to discuss this specific patient's treatment case proceed to question 7; otherwise</b></p> <p><b>If no response after three minutes more; and statement above does not apply ask question 8).</b></p>	<p>Questions must flow and be natural and calming! Seek rich detailed descriptions!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <ul style="list-style-type: none"> <li>• Show original of patient <i>Statement of Informed Consent</i> to this clinician <b>IF</b> the informed patient is/was the patient of this clinician <b>AND</b> the additional proviso is initialed next to the I CONSENT.</li> </ul> <p>7a. Can you recall and describe in detail what you saw, heard, sensed, or felt about (Patient's Name and date) just moments before his or her memory return?</p> <p><b>If no response after five minutes ask question 7b).</b></p> <p>7b. Please describe in as much detail as you can the circumstances and details of how you knew (Patient's Name and date) had just gotten his or her memory back.</p> <p><b>If no response after five minutes ask question 7c).</b></p> <p>7c. What else was going on?</p> <p><b>If no response after five minutes proceed to question 8.</b></p>	<p>Questions must flow and be natural and calming! Seek rich detailed descriptions!</p> <p><b>Ask probing question as necessary</b> <b>Ask iterative question as necessary</b></p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Questions (cont.):</b></p> <p>8a. Is there anything else you can recall about when you realized your patient(s) had recall of their memory of the traumatic event?</p> <p><b>If no response after five minutes ask question 8b).</b></p> <p>8b. Anything else?</p> <p><b>If no response after five minutes proceed to interview debriefing</b></p> <p>-----</p>	<p>Questions must flow and be natural and calming!</p> <p>Seek rich detailed descriptions!</p>

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Descriptive Notes	Reflective Notes
<p><b>Interview Debriefing:</b></p> <ul style="list-style-type: none"> <li>• Thank you again for taking part in this qualitative research study.</li> <li>• [Remind participant about] Privacy, confidentiality and informed consent.</li> <li>• [Remind participant about] Time is necessary to create transcript from the audio recording.</li> <li>• [Remind participant that] Your feedback will help the researcher make sure that he/she really captured what it is you wanted to say.</li> <li>• [Remind participant that] After you validate the context of the transcript, they may then receive their incentive for completing their participation.</li> </ul>	

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Descriptive Notes	Reflective Notes
Self-Evaluation:	Self-disclosure and reflexivity.

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Appendix B: Data Cross-reference Sheet

Data Cross-reference Sheet

Sheet No. 0001

Line No.	Last Name and Suffix ( <i>Sr., Jr., II, III, etc.</i> )	Prefix and First Name ( <i>Mr., Mrs., Ms., Dr., Fr., etc.</i> )	Ctrl No.	Study Position (C or N)	Qualify (Q or D)	Rationale or Additional remarks.
1			0001			
2			0002			
3			0003			
4			0004			
5			0005			
6			0006			
7			0007			
8			0008			
9			0009			
10			0010			
1			0011			
2			0012			
3			0013			
4			0014			

*Note.* All non-preprinted information will be hand written only. This form shall not be reproduced or otherwise copied once hand written information is entered on it. Study Position refers to Clinician (C) or Patient (N). Qualify refers to the participant’s eligibility to participate in the study; qualifies (Q) or does not qualify (D).

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Line No.	Last Name and Suffix ( <i>Sr., Jr., II, III, etc.</i> )	Prefix and First Name ( <i>Mr., Mrs., Ms., Dr., Fr., etc.</i> )	Ctrl No.	Study Position (C or N)	Qualify (Q or D)	Rationale or Additional remarks.
5			<b>0015</b>			
6			<b>0016</b>			
7			<b>0017</b>			
8			<b>0018</b>			
9			<b>0019</b>			
20			<b>0020</b>			
1			<b>0021</b>			
2			<b>0022</b>			
3			<b>0023</b>			
4			<b>0024</b>			
5			<b>0025</b>			
6			<b>0026</b>			
7			<b>0027</b>			
8			<b>0028</b>			
9			<b>0029</b>			

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Line No.	Last Name and Suffix ( <i>Sr., Jr., II, III, etc.</i> )	Prefix and First Name ( <i>Mr., Mrs., Ms., Dr., Fr., etc.</i> )	Ctrl No.	Study Position (C or N)	Qualify (Q or D)	Rationale or Additional remarks.
30			<b>0030</b>			
1			<b>0031</b>			
2			<b>0032</b>			
3			<b>0033</b>			
4			<b>0034</b>			
5			<b>0035</b>			
6			<b>0036</b>			
7			<b>0037</b>			
8			<b>0038</b>			
9			<b>0039</b>			
40			<b>0040</b>			
1			<b>0041</b>			
2			<b>0042</b>			
3			<b>0043</b>			
4			<b>0044</b>			

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Line No.	Last Name and Suffix ( <i>Sr., Jr., II, III, etc.</i> )	Prefix and First Name ( <i>Mr., Mrs., Ms., Dr., Fr., etc.</i> )	Ctrl No.	Study Position (C or N) <sup>2</sup>	Qualify (Q or D) <sup>3</sup>	Rational or Additional remarks.
4			<b>0044</b>			
5			<b>0045</b>			
6			<b>0046</b>			
7			<b>0047</b>			
8			<b>0048</b>			
9			<b>0049</b>			
50			<b>0050</b>			
1			<b>0051</b>			
2			<b>0052</b>			
3			<b>0053</b>			
4			<b>0054</b>			
5			<b>0055</b>			

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## Appendix C: Expanded List of Codes

First Digit (Domain)	Second Digit (Feature)	Third Digit (Character)	Fourth and Fifth Digits (Additional Delineation)
The World (1)	Time (A)	Morning (1) Afternoon (2) Feeling (3)	Additional delineation (Lowercase letter(s))
	Room (B)	Space (1) Window (2) Door (3) Walls (7) Ceiling (4) Flooring (5) Room Feeling (6)	
	Furniture (C)	Quantity (1) Location (2) Description (3) Color (4) Touch (5) Smell (6) Sound (7) Comfort(able) (8) Feel/Feeling (9)	
	Lighting (D)	Quantity (1) Source (2) Color/Atmosphere (3) Feel/Feeling (4)	
	Other Décor (E)	Quantity (1) Location (2) Description (3) Color/Texture (4) Touch (5) Smell (6) Sound (7) Feel/Feeling (8)	
	Smells (F)	Description (3) Location/Source (2) Feel/Feeling (8)	

First Digit (Domain)	Second Digit (Feature)	Third Digit (Character)	Fourth and Fifth Digits (Additional Delineation)
The World (1)	Noises/Sounds (G)	Description/Source (1) Volume (2) Frequency (3) Feel/Feeling (8)	
	Temperature (H)	Location/Source (2) Hot/Warm (3) Cold/Cool/Chilly (4) Feel/Feeling (8)	
The Other (2)	Age (A)	Young Adult (1) Adult (2) Old (3) DNS/Unsure (7)	Additional delineation (Lowercase letter(s))
	Gender (B)	Male (1) Female (2) DNS/Unsure (7)	
	Aesthetic Appreciation (C)	Yes (1) No (2) DNS/Unsure (7)	
	Cloths/Attire (D)	Professional (1) Causal (2) Inappropriate (3) DNS/Unsure (7)	
	Eye Contact (E)	Direct (1) Appropriate/Natural (2) Indirect (3) Threat (4) Flirting (5) Inappropriate (6) DNS/Unsure (7)	
	Condition of Eyes (F)	Dry (1) Moist (2) Teary/Crying (3) Red (4) Bloodshot (5) Normal (8) DNS/Unsure (7)	
	Tone of Voice (G)	Other/TBD (1) Other/TBD (2) DNS/Unsure (7)	

First Digit (Domain)	Second Digit (Feature)	Third Digit (Character)	Fourth and Fifth Digits (Additional Delineation)
The Other (2)	Voice (H)	Other/TBD (1) Other/TBD (2) Other/TBD (3) DNS/Unsure (7)	
	Posture (I)	Straight (1) Twisted(ing) (2) Lean F. (3) Lean B. (4) Defensive (5) Approachable (6) DNS/Unsure (7)	
	Gestures (J)	Face (0) Hands (1) Head (2) Legs/Feet (3) Torso (4) DNS/Unsure (7)	
	Smell (K)	Source (1) Pleasant (4) Unpleasant (5) DNS/Unsure (7)	
	Emotionality (L)	Displayed Feelings (codes from Self) Pleasant (4) Unpleasant (5) DNS/Unsure (7)	
	Perceptibility (M)	Kept Alliance (1) Knew Patient Feeling (2) Empathy (3) Sympathetic (4) G. Communicator (5) P. Communicator (6) Distant (8) Closed Off (10) Other/TBD (9) DNS/Unsure (7)	

First Digit (Domain)	Second Digit (Feature)	Third Digit (Character)	Fourth and Fifth Digits (Additional Delineation)
The Self (3, 4, & 5) ( 3, 4, 5 were separate codes for each iteration )	Eyes (A)	Look Up (1) Look Down (2) Dilated (15) Blinking Rate (17) Distracted/Looking Around (3) Avoidant (4) Staring/Impatience (5) Closed/Shut/Slightly Open (6) Wide open (7) Moist/wet/teary (8) Crying (10) Dry/irritated/red (11) Unemotional (12) Eyebrow Tense (13) Eyebrow Sweat(ing) (14) Eye/Eyebrow Twitch (15) Normal/Unremarkable (16) DNK/DNS (9)	Additional delineation (Lowercase letter(s))
	Mouth (B)	Open (slightly) (1) Open (gape) (2) Normal (3) Frown (4) Smile(ing) (13) Swallow(ing) Pattern (14) Gnashing/Grinding Teeth (15) Voice Loud (5) Voice Soft/Quiet (6) Voice Silent (7) Speaks Faster (10) Speaks Slower (11) Quiver/Twitching (12) Mimics Thoughts (8) DNK/DNS (9)	

First Digit (Domain)	Second Digit (Feature)	Third Digit (Character)	Fourth and Fifth Digits (Additional Delineation)
The Self (3, 4, 5)	Face (C)	Embarrassed/Red (1) Pale/Pasty (2) Facial Twitching (3) Nose Stuffy/Running/Red (4) Confused/Disbelief (5) Change Expression (6) Sad (7) Angry Skulk (8) Blank/Unexpressive (10) Normal/Unremarkable (11) DNK/DNS (9)	
	Numbness/ Tingling (D)	Location (1) Intensity (2) Duration (3) None (10) DNK/DNS (9)	
	Skin (E)	Cold/Cool/Chilly (1) Hot/Warm (2) C. Sweats (3) H. Sweats (4) Normal (5) Gen Sweating/Clammy (6) Pale (7) Dry (8) Goosebumps/Raised Hairs (11) DNK/DNS (9)	
	Muscles/ Bones (F)	Wobbliness (1) Trembling (2) Tightness (3) Pain (4) Change in Energy/Vitality (5) DNK/DNS (9) Other (10)	

First Digit (Domain)	Second Digit (Feature)	Third Digit (Character)	Fourth and Fifth Digits (Additional Delineation)
The Self (3, 4, 5)	Tension (G)	Aggravated (1) Agitate(d)(ion) (2) Alarm(ed) (3) Annoyed (4) Anxiety (5) Fear(ful) (6) Irritate(d)(ion) (7) Panic (8) Relax(ed) (10) Startle(d) (11) DNK/DNS (9)	
	Chest - Heart (H)	Slow/Slowing (1) Weak (2) Steady (3) Fast/Faster (4) Pounding (5) Pain (6) Other/TBD (8) DNK/DNS (9)	
	Chest - Lungs (I)	Slow/Slowing (1) Shallow/Weak (2) Steady (3) Harder (4) Fast/Faster (12) Deeper (5) Pain (6) Holding/Held/Controlling (8) Staggered/Strange (11) Unspecified/Other (10) DNK/DNS (9)	
	Stomach/Gut (J)	Hungry (1) Indigestion (2) Diarrhea (3) Nausea (4) Constipation (5) Pain (6) Other/TBD (8) None (10) DNK/DNS (9)	

First Digit (Domain)	Second Digit (Feature)	Third Digit (Character)	Fourth and Fifth Digits (Additional Delineation)
The Self (3, 4, 5)	Pain (Physiological) (K)	Location (1) Frequency (2) Intensity (3) Other/TBD (8) None (10) DNK/DNS (9)	
	Posture/ Gestures (L)	Immobile/Rigid (1) Shock/Unresponsive (2) Sat Forward/Leaned Over (3) Head Tilt (11) Sat Up (12) Body Reclined/Sat Back (13) Fidgeting/Twisted(ing) (14) Sensitive to senses (4) Crossed Arms (5) Crossed Legs/Ankles (6) Hands Pressed (7) Other Quiver/Twitching (8) Other (10) DNK/DNS (9)	
	Emotions, Feelings, and Tones (M)	(134 delineations)	
	Cognitive Process(es) (N)	Thinking (1) Attention (12) Knowing (2) Remembering (3) Judging (4) Motivation (5) Problem Solving (6) Category Formation (7) Pattern Recognition (8) Decision Making (10) Defensive Mechanism (11) Other (12) DNK/DNS (9)	
	Feel(ing) Change (O)	Start Session (1) Middle Session (2) Ending of Session (3) DNK/DNS (9)	

First Digit (Domain)	Second Digit (Feature)	Third Digit (Character)	Fourth and Fifth Digits (Additional Delineation)
The Self (3, 4, 5)	Connection to Therapist (P)	Yes (1) No (2) DNK/DNS (9)	
	Response to Questions (Q)	Initial (1) Follow-up (2) Probing (3) Communicate More (4) Communicate Less (5) Verbalized Change (6) DNK/DNS (9)	