

**VICARIOUS AND AUTOBIOGRAPHICAL MEMORY: EXPLORING  
ASSOCIATIONS WITH MOOD, IDENTITY AND MEANING-MAKING**

by © Emily S. Pond

A dissertation submitted to the School of Graduate Studies in partial fulfillment of the  
requirements for the degree of

**Doctor of Psychology**

**Department of Psychology, Faculty of Science**

Memorial University of Newfoundland

**October 2020**

St. John's, Newfoundland and Labrador

### Abstract

Vicarious memories are memories that people have in reference to events that they have not directly experienced; rather, they heard them secondhand. Previous studies of vicarious memory have predominantly focused on vicarious trauma and intergenerational narratives. There are few studies that have specifically examined non-traumatic vicarious memories beyond intergenerational narratives. The purpose of this study was to contribute new information to the memory literature regarding vicarious memory reports. University students ( $N = 142$ ) completed an in-person interview in which they recalled four memories: a highly positive personal memory, a highly negative personal memory, a highly positive vicarious memory and a highly negative vicarious memory. Participants also completed questionnaires regarding identity development (Ego Identity Process Questionnaire), identity distress (Identity Distress Survey) and psychological distress (Depression Anxiety Stress Questionnaire 21). Personal and vicarious memory reports were compared and contrasted in terms of various memory qualities, memory functions, event centrality and the ways in which participants made meaning from the events. The results indicate that vicarious and personal memory reports share many phenomenological and functional properties. Although to a lesser degree than personal memories, vicarious memories do influence decision-making and problem-solving. A particularly important function of vicarious memory is enhancing intimacy. Furthermore, participants endorsed vicarious memories as a reference point for interpreting other life experiences. Young adults create meaning about themselves from highly emotional vicarious memories, and they do so in a pattern that parallels meaning-making of highly emotional personal memories. Current models of episodic memory only include events that individuals have

directly experienced. The current study adds to a growing body of literature, which suggests that current models of episodic memory are too restrictive and should expand to include vicarious memory reports.

*Keywords:* vicarious memory, autobiographical memory, episodic memory, narratives, autobiographical reasoning, psychological distress, identity development, self-event connections, identity distress

### **Acknowledgements**

First and foremost, I would like to thank my supervisor, Dr. Carole Peterson for her constant support and mentorship throughout my graduate degree. It was truly an honour to have the opportunity to work alongside such a passionate, accomplished researcher.

I would also like to thank Dr. Julie Gosselin and Dr. Olga Health for serving on my thesis committee. They both provided insightful feedback, as well as excellent consultancy throughout the process. Sincerest gratitude goes to Penny Voutier for her invaluable assistance with data coding and the guidance she provided to others who were involved with coding and transcription.

I owe a deep appreciation to the Social Sciences and Humanities Research Council (SSHRC) for funding this project with the Joseph-Armand Bombardier Canada Graduate Scholarship.

Thank you to Dr. Darcy Hallett for his lessons and statistical consultation. I greatly appreciated that he always found time to answer my questions. I would also like to express my thanks to Whitney Willcott-Benoit and Alexandra Dejong for the many hours they spent transcribing and coding data. Thank you to my interviewers, Samantha Edwards, Erin Cahill, Louise Bell and Sarah Williams. Thank you to Kailey Roche and Liam Foley for all they did as both volunteers and MUCEP employees. Thank you to all those who assisted with transcription. Thank you to my participants, I appreciate each of you who chose to participate in my study and share emotional events from your lives.

I am so grateful to everyone who has supported me on my journey throughout graduate school. I am especially thankful to my mom, dad, my grandparents, for instilling

within me the value of education and supporting me in every effort as I pursued my goals.

Finally, thank you to Adam, for being there for me every step of the way.

**Table of Contents**

Abstract.....	ii
Acknowledgements.....	iv
Table of Contents.....	iv
List of Tables.....	xi
List of Figures.....	xiii
List of Abbreviations.....	xiv
List of Appendices.....	xv
Introduction.....	1
Theoretical Models of Memory.....	3
Autobiographical Memory.....	5
Functions of autobiographical memory.....	7
Social and cultural variations of autobiographical memory.....	8
Emotion and autobiographical memory.....	11
Assessing autobiographical memory.....	13
Autobiographical reasoning: self-event connections.....	14
Vicarious Memories.....	16
Functions of vicarious memories.....	17
Accuracy of vicarious narratives.....	18
Assessing vicarious memory.....	20
Vicarious trauma.....	22
Intergenerational narratives.....	26
Narrative ecologies.....	28

Autobiographical reasoning in vicarious memories .....	29
Vicarious memory and memory frameworks .....	32
The Current Study .....	34
Research question 1 .....	35
Research question 2 .....	35
Research question 3 .....	36
Research question 4 .....	36
Methodology .....	37
Participants.....	37
Measures .....	41
Memory recall task. ....	41
Centrality of events scale.....	42
Identity distress survey. ....	43
Ego identity process questionnaire (EIPQ).....	44
The depression anxiety stress scales 21 (DASS-21).....	44
Procedure .....	45
Coding.....	48
Word counts.....	48
Self-event connections .....	48
Results.....	52
Descriptive Data.....	52
Memory incidence. ....	52
Relationships.....	53

Memory specificity .....	55
Memory descriptives.....	55
Self-event connections: valence frequency.....	59
Self-event connections: category frequency .....	59
Clinical measures.....	59
Research Question #1.....	62
Preliminary analyses.....	63
Narrative qualities: 2 (memory valence) × 2 (memory type) × 2 (order) manova. ...	64
Three-way interactions.....	64
Simple two-way interactions.....	65
Simple simple main effects.....	65
Simple main effects.....	67
Two-way interactions and simple main effects .....	69
Word counts: four-way 2 (gender) × 2 (memory type) × 2 (memory valence) ×	
(order) mixed anova.....	72
ANOVA interactions .....	73
Simple two-way interactions.....	73
Simple main effects.....	73
Research Question #2.....	76
Preliminary analyses.....	76
Self event-connections: four-way 2 (gender) × 2 (memory valence) 2 (memory type)	
× 2 (self-event connection valence) ANOVA.....	77



Three-way interaction: memory type × memory valence × self-event connection valence. ....	78
Simple two-way interaction .....	78
Simple main effects.....	78
Simple simple main effects.....	79
Three-way interaction: memory type × self-event connection valence × gender..	79
Simple two-way interaction .....	80
Simple main effects.....	80
Research Question #3.....	81
Research Question #4.....	84
Discussion .....	85
Memory Qualities .....	87
Memory Functions .....	91
Memory Centrality .....	96
Self-Event Connections.....	97
Memory Centrality and Self-Event Connections .....	105
Memory Centrality and Psychological Distress.....	108
Self-Event Connections and Psychological Distress .....	109
Identity and Self-Event Connections .....	110
Vicarious Memories within the Theoretical Framework of Memory .....	114
Strengths and Limitations .....	119
Clinical Implications.....	122
Autobiographical reasoning in vicarious memories. ....	122

Identity .....	123
Psychological distress .....	124
Implications for therapeutic intervention.....	127
Future Directions.....	131
Conclusion .....	133
References.....	135
Appendices.....	189

### List of Tables

Table 1. <i>Frequency of Relationship Type (Percentage) Between Participant and Vicarious Protagonist or the Individual to Whom the Participant First Disclosed the Personally Experienced Event</i> .....	158
Table 2. <i>Frequency of Specific and Non-specific Memory Types Across Personal and Vicarious Memories</i> .....	159
Table 3. <i>Personal Memory Descriptives Means (Standard Deviations)</i> .....	160
Table 4. <i>Vicarious Memory Descriptives Means (Standard Deviations)</i> .....	161
Table 5. <i>Word Count Means (Standard Deviations) for Each Memory Type</i> .....	162
Table 6. <i>Self-Event Connection Valence Means (Standard Deviations) for Each Memory Type</i> .....	163
Table 7. <i>Self-Event Connection Category Means (Standard Deviations)</i> .....	164
Table 8. <i>Clinical Measures Means (Standard Deviations) Compared Between Gender</i>	165
Table 9. <i>Memory Variable Means (Standard Deviations) (Range 1 to 5)</i> .....	166
Table 10. <i>Preliminary MANOVA for Memory Qualities</i> .....	167
Table 11. <i>Main MANOVA for Memory Qualities</i> .....	168
Table 12. <i>Significant Simple Main Effects for Memory Qualities: Estimated Marginal Means</i> .....	169
Table 13. <i>Word Counts Summary</i> .....	170
Table 14. <i>Self-Event Connection Analysis of Variance Summary</i> .....	171
Table 15. <i>Women Correlations Between Self-Event Connection (SEC) Frequency and Memory Centrality</i> .....	173

Table 16. <i>Men Correlations Between Self-Event Connection (SEC) Frequency and Memory Centrality</i> .....	174
Table 17. <i>Correlations Between Overall Memory Centrality and Psychological Distress</i> .....	175
Table 18. <i>Women Correlations Between Clinical Measures and Self-Event Connection (SEC) Frequency</i> .....	176
Table 19. <i>Men Correlations Between Clinical Measures and Self-Event Connection (SEC) Frequency</i> .....	177
Table 20. <i>Women Correlations Between Identity Measures and Self-Event Connection (SEC) Frequency</i> .....	178
Table 21. <i>Men Correlations Between Identity Measures and Self-Event Connection (SEC) Frequency</i> .....	179

### List of Figures

<i>Figure 1.</i> Participant Flow Chart Through the Recruitment, Interviewing and Analyses Process .....	180
<i>Figure 2.</i> Bar Graph of Memory Functions Unique to Vicarious or Personal Memory Reports .....	181
<i>Figure 3.</i> Bar Graph of Memory Quality Ratings for Negative Memory Reports .....	182
<i>Figure 4.</i> Bar Graph of Memory Quality Ratings for Positive Memory Reports.....	183
<i>Figure 5.</i> Bar Graph of Memory Significance Ratings for Negative Memory Reports ..	184
<i>Figure 6.</i> Bar Graph of Memory Significance Ratings for Positive Memory Reports....	185
<i>Figure 7.</i> Simple Simple Main Effects for Memory Type on Biographical Significance within Positive and Negative Memories (Personal Memories First) .....	186
<i>Figure 8.</i> Simple Simple Main Effects for Memory Type on Vividness within Positive and Negative Memories (Vicarious First).....	187
<i>Figure 9.</i> Significant Two-way Interaction Memory Valence × Gender for Word Counts .....	188

**List of Abbreviations**

DASS-21 – Depression Anxiety Stress Scale

EIPQ – Ego Identity Process Questionnaire

IDS – Identity Distress Survey

PREP – Psychology Research Experience Pool

PTSD – Post-Traumatic Stress Disorder

**List of Appendices**

Appendix A .....	190
Appendix B .....	191
Appendix C .....	192
Appendix D .....	193
Appendix E .....	195
Appendix F .....	196
Appendix G .....	200
Appendix H .....	201
Appendix I .....	203
Appendix J .....	204
Appendix K .....	209
Appendix L .....	215
Appendix M .....	216
Appendix N .....	217
Appendix O .....	225
Appendix P .....	226
Appendix Q .....	228

Vicarious and Autobiographical Memory: Exploring Associations with Mood, Identity,  
and Meaning-Making

Autobiographical memory is defined as memories of personally experienced events and personal facts (Conway, 2005; Conway & Pleydell-Pearce, 2000; Fivush, 2011). Autobiographical memory serves numerous important functions, including self-definition, enhancement of social relationships and guidance of future behaviours (Alea & Bluck, 2007; Bluck & Alea, 2008; Bluck, Alea, Habermas & Rubin, 2005; Waters, Bauer, & Fivush, 2014). Vicarious memories are memories that people have in reference to events that they have not directly experienced; rather, they heard them secondhand (Pillemer, Steiner, Kuwabara, Thomsen & Svob, 2015). Pillemer et al. (2015) compared vicarious memory reports and personal memory reports in terms of personal significance, memory qualities and memory functions and discovered that although personal memories are rated higher across these memory variables, ratings for vicarious memories follow the same pattern as personal memories. To date, little research has examined vicarious memories, but the similarities between vicarious and personal memories, as found by Pillemer et al. (2015), suggest that vicarious memories, like autobiographical memories, may be significant and serve memory functions, such as self-definition, enhancing problem-solving and fostering relationships.

In the autobiographical memory literature, researchers have demonstrated that people create personal meaning from past experiences by connecting aspects of past events to their current self, and these links are termed self-event connections (Habermas & Bluck, 2000; McLean & Fournier, 2008). There are many ways in which people use self-event connections. Individuals may connect past events to current traits that are



positive, negative, mixed, or neutral. Researchers have found that the way in which individuals make meaning out of past events is associated with psychological distress and identity development (Banks & Salmon, 2013; Merrill, Waters & Fivush, 2016). In particular, individuals who connect negative events to the current self in positive ways have more identity development and less psychological distress, while people who connect negative events to the self in negative ways have more psychological distress (Merrill et al., 2016). Given the prevalence of meaning-making within personal memories, and the similarities between personal and vicarious memory, meaning-making within vicarious memories must be further studied.

With few exceptions, (i.e.: Panattoni & Thomsen, 2018; Lind & Thomsen, 2017) prior research comparing personal and vicarious memories has not specified what types of memories were to be reported (i.e., Pillemer et al., 2015) or they have exclusively examined negative vicarious memories (i.e.: Mirzamani & Bolton, 2003). As a consequence, few studies have included vicarious memories that involved high levels of positive emotion. Both positive and negative emotion have been shown to influence memory survivability (Peterson, Hallett, & Compton-Gillingham, 2018; Peterson, Morris, Baker-Ward, & Flynn, 2014) and impact (Berntsen, Rubin & Siegler, 2011; Buchanan, 2007; Rasmussen & Berntsen, 2009; Reisberg & Hertel, 2004; Walker, Skowronski & Thompson, 2003). Thus, the purpose of the current study was to study memories perceived as highly emotional (positive and negative), and to compare highly emotional vicarious memory reports with highly emotional personal memory reports. Memories were compared in terms of memory qualities, personal significance, memory functions, memory centrality and the frequency and type of self-event connections generated within

each narrative. The associations between self-event connections, identity distress, identity development and psychological distress were also examined.

### **Theoretical Models of Memory**

Memories are broadly categorized as implicit or explicit based on whether or not memory retrieval requires conscious effort (Graf & Schacter, 1985; Schacter, Wagner, and Buckner, 2000; Squire, 2004; Tulving, 1972). Implicit memory does not require conscious awareness, and includes procedural knowledge or perceptual knowledge, such as riding a bike or recognizing the taste of peppermint (Graf & Schacter, 1985; Schacter et al., 2000; Squire, 2004). In contrast, explicit memory retrieval requires conscious effort and includes memories of facts and events (Graf & Schacter, 1985; Schacter et al., 2000; Squire, 2004). A widely accepted theory of memory is Tulving's framework, which divides explicit memory into semantic and episodic memory (Tulving, 1972; 1985; 2002). Semantic memory is a general knowledge base, which refers to knowledge of information without awareness of where or when the information was obtained, such as knowledge of one's childhood street address (Fivush, 2011; Schacter et al., 2000; Squire, 2004; Tulving, 1972, 2002). Episodic memory is defined as memories of personally experienced one-time events, which include details of what happened during the event, and are associated with a specific place and time (Tulving, 1972, 1985, 2002). Tulving (2002) proposed that a key characteristic of episodic memory is autonoetic consciousness, which is the awareness that one personally experienced an event in the past by reliving the event through mental time travel. He argued that in addition to recalling the "what," "when" and "where" of an event, episodic memory must also involve autonoetic consciousness.

An example of an episodic memory is one's memory of giving a valedictorian speech at their high school graduation ceremony.

Some researchers have challenged Tulving's (1972; 1985; 2002) framework of memory by arguing that conceptualizations of explicit memory should extend beyond general knowledge and memories of one-time events (Barsalou, 1988; Peterson, Baker-Ward & Grovenstein, 2016; Rubin & Umanath, 2015; Waters et al., 2014). Results of recent studies suggest that in addition to specific one-day events, episodic memory should include memories of events that occurred on multiple occasions or over an extended period of time (beyond one single day) (Peterson et al., 2016; Rubin & Umanath, 2015; Waters et al., 2014). There are three common types of memory for events: specific memories, repeated memories and extended memories (Barsalou, 1988; Waters et al., 2014). A specific memory is a memory of an event that lasted less than one day and is associated with a particular time and place, for example, one's memory of their 15<sup>th</sup> birthday party. Specific memories are consistent with Tulving's original conceptualization of episodic memory (Tulving, 1972; 1983; 2002). Repeated memories are memories of reoccurring events, which involve the same people and setting (Waters et al., 2014), for example, one's memory of attending soccer practice every Sunday in grade three. The third memory type, extended memory, is a combination of specific and repeated memory. It involves one particular event that extends beyond one day (Waters et al., 2014), for example one's memory of a four-day trip to New York. Waters et al. (2014) determined that specific, repeated and extended memories all serve important functions, although they differ in the extent that they serve each function. Memories of specific and extended events are more relevant for guiding future behaviours and serving

a self-defining function than memories of repeated events, while memories of extended and repeated events are more important for serving a social function than memories of specific events (Water et al., 2014). In addition, college students report specific and repeated memories as equally personally significant (Peterson et al., 2016). These results suggest that all three types of event memories have functional significance. Exclusively studying specific events may be inappropriate and result in the loss of valuable information associated with repeated and extended events.

### **Autobiographical Memory**

Autobiographical memory is broadly defined as memories of one's life or imagined events that could occur in one's future (Baddeley, 2012; Conway, 2005; Conway & Pleydell-Pearce, 2000; Marsh & Roediger, 2013; Rubin & Umanath, 2015). Autobiographical memory has been defined in varying degrees of complexity (Baddeley, 2012; Conway, 2005; Fivush, 2011; Rubin & Umanath, 2015). Controversy arises when researchers define autobiographical memory in more narrow terms. Some researchers have argued that autobiographical memory encompasses general personal knowledge (e.g. knowledge of your profession), which is a type of semantic memory, in addition to memories of personally experienced events (e.g. high school graduation ceremony), which is a type of episodic memory (Baddeley, 2012; Fivush, 2011; Rubin & Umanath, 2015; Tulving, 1972). More complex definitions of autobiographical memory reference the process of linking many personally experienced events to create a personal life story, which is crucial to a sense of self (Bluck & Alea, 2008; Bluck et al., 2005; Conway, 2005; Conway & Pleydell-Pearce, 2000; Fivush, 2011; Nelson & Fivush, 2004). Autobiographical memories tend to be personally significant and are associated with

personal emotions, motivations and goals (Conway, 2005; Conway, Meares & Standart, 2004; Fivush, 2011; Nelson & Fivush, 2004). Fivush (2011) further indicated that important aspects of autobiographical memory include interpretation of past events and evaluation of the self.

According to Tulving's definition of episodic memory, all specific memories of past events are classified as autobiographical memories and the two terms can be used interchangeably (Rubin & Umanath, 2015; Tulving, 1972; 1985; 2002). In contrast, some researchers argue that autobiographical memory and episodic memory should be differentiated (Bluck & Habermas, 2000; Fivush, 2011). Fivush (2011) described episodic memory as the ability to recall an event, whereas autobiographical memory is a more complex process that requires the ability to recall personally experiencing the event in addition to the details of what happened during the event. She emphasized that Tulving's (2002) defining features of episodic memory (autonoetic consciousness and key event information) can be separated. She suggested that retrieval of event details is the defining feature of episodic memories, and this information can be recalled without autonoetic consciousness. Fivush (2011) argued that it is possible to recall specific past events to guide future behaviours without reliving the event, as is evident from animal studies. For example, Roberts (2002) conducted a literature review in which he determined that animals have a limited ability to engage in mental time travel, yet they are able to use past experiences to guide future behaviours, for example remembering which areas have food, or are dangerous. This suggests that animals can recall the what, where and when of events, but they do not have autonoetic awareness. As a result, Fivush (2011) emphasized that the combination of autonoetic consciousness and event details are unique to

autobiographical memory, whereas memory of event details without auto-noetic consciousness constitutes episodic memory.

Given the varied definitions of autobiographical memory and episodic memory, the current study sought to examine memory using a broad definition. Consistent with Tulving's (2002) definition of episodic memory, and Fivush's (2011) definition of autobiographical memory, for the purposes of the current study, the term "personal memory" will be used to refer to memories of personally experienced events. These memories require auto-noetic consciousness and event details. Furthermore, given the importance of non-specific event memory (Peterson et al., 2016; Waters et al., 2014), "personal memory" may also refer to specific, extended or repeated events.

**Functions of autobiographical memory.** Autobiographical memory serves three major functions: self-definition, social connectedness and guidance of future behaviours (Alea & Bluck, 2007; Bluck & Alea, 2008; Bluck et al., 2005; Waters et al., 2014). Autobiographical memory serves the function of self-definition because it allows individuals to develop a stable identity, by linking past experiences into a life story (Bluck & Alea, 2008; Bluck et al., 2005; Conway, 2005; Habermas & Bluck, 2000; Waters et al., 2014). Autobiographical memory is essentially a collection of personal events that create a life story, and therefore it is critical for the development of self-concept (Bluck & Alea, 2008). The relationship between autobiographical memory and sense of self is bidirectional; autobiographical memories contribute to one's self concept, and one's self concept influences which autobiographical memories are easily recalled or forgotten (Conway & Pleydell-Pearce, 2000; Walker, et al., 2003). To maintain a

continuous sense of self, memories may be altered to be consistent with traits, goals, and self-image (Conway, 2005; Conway et al., 2004; Walker et al., 2003).

Autobiographical memory serves the function of social connectedness because it allows people to develop and nurture social relationships by reminiscing about shared experiences (Alea & Bluck, 2007; Bluck et al., 2005; Waters et al., 2014). Feelings of closeness towards others are based on memories of shared experiences; therefore, autobiographical memory allows individuals to develop representations of their relationships (Alea & Bluck, 2007; Fivush, 2008; Reese & Fivush, 2008). Alea and Bluck (2007) found that when adults describe events that they previously experienced with a romantic partner, they subsequently reported increased feelings of warmth towards their partner. These results suggest that autobiographical memory serves the function of fostering intimacy.

Autobiographical memory guides present and future behaviours by allowing individuals to use memories of past experiences to solve present and future problems (Bluck et al., 2005; Pillemer, 2003; Waters et al., 2014). Bluck et al. (2005) described the directive function of autobiographical memory very broadly. They suggested that memories of past experiences help people develop future goals, solve problems, and make meaning from new experiences. For example, if a medical student observes a heart surgery and is inspired to pursue a career in cardiology, she may base future decisions on her memory of observing her first heart surgery.

**Social and cultural variations of autobiographical memory.** Autobiographical memory reports differ between genders (Gryzman & Hudson, 2013; Nelson & Fivush, 2004) and across cultures (Fivush, Habermas, Ross & Wang, 2010; Waters, & Zaman,

2011; Wang, 2013; Wang & Conway, 2004; Wang & Ross, 2007). According to Nelson and Fivush's (2004) social-cultural development theory, differences in autobiographical memory reports are greatly influenced by differences in parent-child reminiscing (Peterson & McCabe, 1996; Sales, Fivush & Peterson, 2003). Parent-child conversation styles have an important impact on children's ability to recall memories of events.

Through reminiscing with their parents, children learn what type of information is important when describing an event (Nelson & Fivush, 2004). Differences in parent-child conversations reflect the parent's conversation style (Boland, Haden, & Ornstein, 2003; Nelson & Fivush, 2004). An elaborative conversation style is demonstrated in parent-child conversations when parents ask many questions, provide additional detail, and provide children with feedback to extend conversations (Boland et al., 2003; Nelson & Fivush, 2004). When parents engage in elaborative conversations with their children, children include more emotions and more details in their memory reports (Boland et al., 2003; Peterson & McCabe, 1996; Reese, Haden & Fivush, 1993; Sales et al., 2003). Parent-child conversation style is one factor that likely contributes to both gender and cultural differences in memory recall, which can persist across time (Nelson & Fivush, 2004; Peterson & McCabe, 1996).

Researchers have identified differences in parent-child conversations depending on the gender of the child. In particular, parents are more elaborative, evaluative and emotion-focused when talking to daughters in comparison to sons (Fivush, Berlin, Sales, Mennuti-Washburn & Cassidy, 2003; Gryzman & Hudson, 2013; Sales, Fivush & Peterson, 2003). When talking to sons, parents are more likely to emphasize factual information rather than emotions (Schulkind et al., 2012). Buckner and Fivush (2000)



found that both mothers and fathers tell more stories of autonomy to sons than daughters, whereas they more often tell daughters stories that highlight relationships. Gender differences in autobiographical memory reports exist across all ages (Buckner & Fivush, 2000; Gryzman & Hudson, 2013; Schulkind, Schoppel & Scheiderer, 2012). Consistent with the pattern in parent-child conversations, women, in comparison to men, are more elaborative and emotional in their recall of personal memories (Gryzman & Hudson, 2013). In terms of autobiographical memory content, women more often reference personal thoughts and feelings, as well as the thoughts and feelings of others (Buckner & Fivush, 2000; Gryzman & Hudson, 2013). These studies emphasize that gender differences exist for many components of memory recall; thus, gender is a critical factor to consider when studying autobiographical memory.

Parent-child conversations have also been studied across cultures (Choi, 1992; Leichtman, Wang & Pillemer, 2003; Wang, Leichtman & Davies, 2000). Parents in collectivist cultures tend to have a less elaborative style when talking to their children in comparison to individualistic cultures (Leichtman, Wang & Pillemer, 2003; Wang et al., 2000). Choi (1992) conducted a study to compare parent-child conversations between American and Korean parents and identified that American parents are more likely to discuss feelings, thoughts and past events with their children. In collectivist cultures parent-child conversations more often focus on social norms, values and interpersonal relationships (Choi, 1992; Leichtman et al., 2003). These findings may, in part, reflect different purposes in sharing narratives with children. American parents more often use storytelling to entertain their children or share information that may contribute to the children's unique sense of self. Parents within collectivist cultures more often use

storytelling to teach children about morals or social norms (Leichtman et al., 2003; Miller, Wiley, Fung & Liang, 1997). Cultural differences in autobiographical memory between cultures likely reflect differences in values between cultures (Leichtman et al., 2003; Wang, 2000). Most studies examining cultural differences in autobiographical memory have compared collectivist and individualist societies (Ross & Wang, 2010; Wang & Conway, 2004; Wang & Ross, 2007; Wang et al., 2000). Individualist cultures emphasize personal uniqueness and autonomy, while collectivist cultures tend to emphasize interpersonal connectedness, group goals and shared identities (Markus & Kitayama, 1998; Wang et al., 2000).

Given the relationship between autobiographical memory and self-concept, cultural differences in self-concept may be especially important to consider when comparing autobiographical memory between cultures. Leichtman et al. (2003) suggested that individualistic memories are more useful within individualist cultures, where individual identity and personal goals are highly valued. Thus, within these cultures it is useful to have a broad collection of memories in which the self presents as unique. In contrast, within collectivist cultures, self-concepts are developed within the context of a larger group. Thus, memories that highlight similarities with others, such as family, may be more important for the development of self-concept. Overall, the research demonstrates that it is necessary to consider social factors, such as gender and culture, when studying autobiographical memory.

**Emotion and autobiographical memory.** Memory retrieval is enhanced for highly emotional events (Buchanan, 2007; Reisberg & Hertel, 2004). Memories of emotional events are easier to recall, they are more vivid, and they have more accurate

details than non-emotional memories (Buchanan, 2007; Reisberg & Hertel, 2004).

Several studies have demonstrated that positive memories are recalled more frequently than negative memories, which suggests a positive bias in autobiographical memory (Berntsen et al., 2011; Ramussen & Berntsen, 2009; Walker, et al., 2003). In contrast, for people who have symptoms of depression or post-traumatic stress disorder (PTSD), this bias is reversed, as these individuals tend to recall negative memories more frequently than positive memories (Berntsen et al., 2011). These studies highlight the relation between memory retrieval and psychopathology.

When events are central to one's identity, the memory of those events reflect the way individuals view themselves, the world, or others (Berntsen & Rubin, 2006). Memories of events are easier to recall when they are central to one's identity, and people tend to identify positive events as central to their identity more frequently than negative events (Berntsen et al., 2011). Individuals who rate negative memories as central to their identity are more likely to have symptoms of PTSD or depression in comparison to individuals who do not rate negative events as central to their identity (Berntsen & Rubin, 2007; Berntsen et al., 2011; Boals, 2010; Scherman, Salgado, Shao & Berntsen, 2015). Boals (2010) found that women are more likely than men to identify past negative events, but not positive events, as central to their identity. Some researchers hypothesize that depression and PTSD are more prevalent among women than men because women are more likely to identify negative events as central to their identity (Berntsen & Rubin, 2007; Boals, 2010; Olf, Langeland, Draijer & Gersons, 2007; Weissman & Klerman, 1977). Banks and Salmon (2013) examined memory reports of highly positive and highly negative events within a university student population. They discovered that when

participants rated negative events as central to their identity, the students endorsed higher degrees of psychological distress and lower degrees of psychological well-being. Overall, these findings suggest that the relationship between the valence of a remembered event and current psychopathology is mediated by whether the event is integrated into one's identity (Banks & Salmon, 2013; Merrill et al., 2016; Scherman et al., 2015).

**Assessing autobiographical memory.** Autobiographical memory can be assessed using various methods, including narrative interviews (McAdams, 1995), or identifying memories of events in response to cue words (Williams & Broadbent, 1986). One common method of eliciting memories of personal events is through the Life Story Interview (McAdams, 1995). In this approach, participants recall eight specific memories from different periods of their life (a high point, a low point, a turning point, an earliest memory, an important childhood scene, important adolescent scene, an important adult scene and one other important scene). Participants are encouraged to use as much detail as possible, including who was there, when the event occurred, emotions or thoughts associated with the event, and implications the event may have for the current self. When administering the Life Story Interview, some researchers opt to administer the interview orally, while others have participants write their narratives (Adler, Lodi-Smith, Phillippe & Houle, 2016; e.g.: Merrill & Fivush, 2016; Salmon & Banks, 2013). Studies that require participants to write narratives allow researchers to gather data from multiple participants simultaneously and avoid transcription of audio files; however written narratives may have fewer details than orally produced narratives due to lack of motivation or comprehension issues. In a review examining methods for eliciting narratives, Alder et al. (2016) concluded that participants who write narratives produce

lower word counts than participants who engage in oral interviews. Furthermore, providing extensive detail about eight events is time-consuming; as such, many researchers do not administer the entire Life Story Interview and instead select fewer than eight types of memories to study (Adler et al., 2016). In particular, researchers often target memories of positive and negative events, especially when studying how participants make meaning out of past experiences (see Banks & Salmon, 2013; Cox & McAdams, 2014; Merrill et al., 2016, etc.). It is common for researchers to use abbreviated versions of the Life Story Interview in conjunction with questionnaires or Likert scales to assess various memory qualities, such as vividness, or emotions associated with the memory (Adler et al., 2016).

**Autobiographical reasoning: self-event connections.** Autobiographical reasoning is the process of making meaning from past events by connecting past experiences to the current self (Banks & Salmon, 2013; Habermas & Bluck, 2000; McLean & Fournier, 2008). Autobiographical reasoning is often studied by examining self-event connections, which are explicit statements in which individuals link past events to aspects of their current selves (Banks & Salmon, 2013; McLean & Fournier, 2008; Pasupathi, Mansour & Brubaker, 2007). Self-event connections may include, for example, the way in which a past event influences one's current beliefs, personality traits, values or attitudes. Pasupathi et al. (2007) emphasized that self-event connections allow events to be integrated into a continuous identity. Self-event connections may be positive, negative, neutral or mixed in valence. Valence of a self-event connection refers to whether the individual connects the event to the self in a positive, negative, neutral or mixed emotion manner. A connection between a past event and a current positive trait

would be classified as a positive self-event connection. For example, “*winning first prize helped me recognize that I am a good musician.*” In this example, the narrator connects the current belief that he is a good musician to a specific event.

Making meaning out of past events is related to identity development and psychological wellbeing (Banks & Salmon, 2013; McLean & Fournier, 2008; Merrill et al., 2016). Merrill et al. (2016) examined associations between identity, psychological wellbeing and self-event connections within highly positive and traumatic personal memory reports. In their study, 225 undergraduate university students wrote detailed narratives about “the most positive” and “the most traumatic” experience of their life. Participants also completed questionnaires regarding depression, anxiety, psychological growth, identity distress and identity growth. Self-event connections were coded within each memory report and sub-coded based on the valence of the self-event connections.

In terms of self-event connection frequency, Merrill et al. (2016) found that participants were more likely to produce positive self-event connections than negative self-event connections across both positive and trauma memory reports. They also found that negative self-event connections were significantly more prevalent within trauma memory reports compared to positive memory reports. They did not observe any significant gender difference in the frequency of self-event connections produced. Merrill et al. (2016) also found within the trauma memory reports, participants who made more negative self-event connections and fewer positive self-event connections exhibited higher degrees of self-reported psychological distress. In contrast, participants who made more positive self-event connections within the trauma memory reports had significantly higher degrees of self-reported psychological growth and identity commitment.

Participants who produced more positive self-event connections in the positive memory reports were significantly more likely to endorse questioning their own identity (identity exploration). Furthermore, though not significant, the researchers found a trend in which participants who made more negative self-event connections within positive and trauma memory reports endorsed more identity distress. They discovered that participants who generated a greater number of positive self-event connections in positive memory reports endorsed higher degrees of psychological growth and identity exploration. The researchers did not observe gender differences, which suggests that men and women use self-event connections in a similar manner. The results from Merrill et al. (2016) suggest that there are positive implications for identity and well-being when individuals generate positive meaning from negative experiences.

### **Vicarious Memories**

Across cultures, people of all ages spend much of their time telling others about their own experiences and listening to others describe experiences (Bruner, 1990; McLean, 2016; Merrill & Fivush, 2016; Reese, Fivush, Merrill, Wang & McAnally, 2017). Vicarious memories are memories that people have in reference to events that they have not directly experienced; rather they are memories of events that people heard secondhand (Pillemer et al., 2015). A vicarious memory is not the memory of hearing someone tell a story of his or her life; it is the mentally constructed scene of an event from another person's life (Pillemer et al., 2015; Rubin & Umanath, 2015). It is important to note that when recalling vicarious memories, the individual is aware that the event happened to someone else; they do not mistakenly believe that they personally experienced an event from another person's life. Research on vicarious memory has

consistently found that people of diverse ages can easily recall events from the lives of family members, friends, and romantic partners (Merrill & Fivush, 2017; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Svob & Brown, 2012; Thomsen & Pillemer, 2017). For clarity, within this paper when describing vicarious memories, the individual who originally experienced the event will be referred to as the “vicarious memory protagonist” and the individual recalling the vicarious memory will be referred to as the “vicarious memory narrator”.

**Functions of vicarious memories.** Considering the prevalence of vicarious memories, they likely serve important functions (Merrill & Fivush, 2017; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Thomsen & Pillemer, 2017). Consistent with the functions of autobiographical memory, vicarious memory appears to serve the functions of self-definition and enhancement of interpersonal relationships (Pillemer et al., 2015; Thomsen & Pillemer, 2017). Researchers have found that vicarious memories, like autobiographical memories, can foster identity development (McLean, 2016; Merrill & Fivush, 2016). One’s sense of self is developed through interactions with other people, and many of these interactions involve discussions of past events (McLean, 2016; Merrill & Fivush, 2016). Merrill and Fivush (2016) noted that through reminiscing with others, children develop an awareness of their own perspective in contrast to the perspectives of others, which is essential for identity development. It is possible that vicarious stories can provide insight regarding how others create meaning out of life experiences, which can influence how vicarious memory narrators make meaning from personally experienced events (Thomsen & Pillemer, 2017). It is theorized that knowledge of vicarious stories may also influence perceived self-worth through social comparisons (Taylor & Lobel,



1989; Thomsen & Pillemer, 2017). By comparing personal experiences to the experiences of others, one may feel better or worse about their own abilities. Furthermore, Thomsen and Pillemer (2017) found that participants rated vicarious memories as less positive than personal memories, which supports the idea that vicarious memory facilitates self-enhancement through social comparisons.

Vicarious memories serve the function of enhancing interpersonal relationships in several ways (Thomsen & Pillemer, 2017). Remembering the life experiences of others may help people understand the perspective of others, which can improve one's ability to relate to others (Thomsen & Pillemer, 2017). Knowledge of how others' past experiences contribute to their current distress may help the individual support others and tailor conversations in a sensitive and helpful manner (Pasupathi, 2001; Thomsen & Pillemer, 2017).

**Accuracy of vicarious narratives.** The details in memory reports may not be entirely consistent with the details of the original event. When sharing stories, people may describe their past experiences in a distorted manner for numerous reasons. As described above, memory is socially and culturally constructed (Nelson & Fivush, 2004) and as such, socialization or cultural values may impact the details that one remembers about an event, or the details one chooses to share about the event. When people describe past experiences to others, they are exposed to the perspectives of others and may re-interpret events to account for new perspectives which allows for personal growth and development (Conway, 2005; Fivush & Merrill, 2014; Pasupathi, 2001). When one shares a story of a personally experienced event, listeners may provide validation, they may disagree or they may provide new insight (Pasupathi, 2001). Listeners often provide

verbal feedback to the storyteller, but they may also provide nonverbal feedback. Listener feedback can communicate interest or boredom in the story, which may influence the way in which the story is shared in future conversations. This may in turn shape the way that the individual remembers his or her own experience (Pasupathi, 2001). Furthermore, people may inadvertently distort descriptions of events to be consistent with their own sense of self (Conway, 2005; Conway & Pleydell-Pearce, 2000; Conway et al, 2004) or they may tailor the description of their experience to engage the listener (McLean, Pasupathi & Pals, 2007; Pasupathi, 2003; Pasupathi et al., 2007). This may result in altered or omitted details in memory reports in contrast to the original event. These studies highlight the many factors that influence personal recall of stories of other people's experiences.

Memory accuracy may be of particular relevance when studying vicarious memory because accuracy may be distorted by the individual who originally experienced the event and by the individual who heard the event secondhand. Perceptual biases likely have an impact on vicarious memory reports because personal experiences and personality may impact how people listen, remember and interpret stories of others' experiences (Lind & Thomsen, 2018; Panattoni & Thomsen, 2018). Panattoni and Thomsen (2018) studied perceiver effects, which occur when people interpret and remember the experiences of others through a lens of their own experiences, which contributes to details of the event being misremembered. They examined the ways in which perceiver effects impact the accuracy of vicarious narratives shared between heterosexual romantic couples. Panattoni and Thomsen (2018) argue that perceiver effects may be of particular relevance within romantic couples because individuals may

be likely to interpret their partner's experiences in a way that is congruent with their personal values to support a positive romantic relationship. Perceiver effects may hold true for stories told within other close relationships, such as close friends or family members.

Similar to Panattoni and Thomsen's (2018) perceiver effects, Thomsen and Pillemer (2017) suggest that personal narratives are used as a template for recall of vicarious narratives. This could mean that when recalling vicarious narratives, people make interpretations or conclusions based on their own personal experiences of how they would have felt if they had directly experienced the event. Alternatively, individuals may simply not remember the entire event experienced by the other person, and to provide a complete narrative they may fill in missing details based on their own experiences, assumptions or interpretations.

It is useful to consider the accuracy of memory reports; however, accuracy is not a defining criterion of episodic or autobiographical memory (Nelson & Fivush, 2004; Rubin & Umanath, 2015; Tulving, 1972). For autobiographical memories, primary functions are self-definition and enhancement of social relationships (Nelson & Fivush, 2004). The memory biases described above likely do not interfere with either of these functions and may actually further enhance these functions. As such, when considering autobiographical memory and vicarious memory, it is more important to consider the individual's interpretation of the event rather than the accuracy of the details recalled (McLean & Fournier, 2008; Pasupathi, 2001).

**Assessing vicarious memory.** Vicarious memory is often studied using methodology similar to that used to assess autobiographical memory, such as variations

of the Life Story Interview (Lind et al., 2018; McAdams, 1995; Panattoni & Thomsen, 2018; Pillemer, et al., 2015; Reese et al., 2017). For example, Panattoni and Thomsen (2018) used an abbreviated version of the Life Story Interview (McAdams, 1995) in which they compared personal and vicarious memory reports from romantic couples. In their study, participants were asked to write about several specific life events for their own life and the life of their romantic partner; essentially each participant completed two Life Story Interviews, one about their own life and one about their partner.

A second example of vicarious memory methodology is the study conducted by Pillemer et al. (2015). They compared personal and vicarious memory reports of undergraduate university students. Participants were sorted into one of two conditions. In one condition, the participants were asked to recall two memories, a vicarious memory that they heard about from a parent, and a memory of a personally experienced event that they told a parent. In the second condition, the participants were asked to recall two memories, a vicarious memory that they had heard about from a friend, and a memory of a personally experienced event that they told a friend. Pillemer et al. (2015) was the first study to compare personal and vicarious memories of everyday life.

The researchers discovered that most participants were able to recall a vicarious and a personal memory. They did not observe gender differences across any statistical analyses. Pillemer et al. (2015) noted that most participants were able to visualize both the personal and vicarious memories; however, participants held different visual perspectives when imagining vicarious and personal memories. In particular, participants reported that vicarious memories were most commonly viewed from an observer perspective while personal memories were typically imagined from a first-person

perspective. They found that participants rated personal memories higher than vicarious memories across all variables, including emotional intensity, vividness, seeing the event in the mind's eye, physical reaction, "*the event forms a part of my identity*," "*the event colours the way I think and feel*," "*the event influences my relationships with others*," and "*the event helps me solve problems*." For two of the questions regarding memory centrality, there was a significant interaction between the type of memory (personal or vicarious) and the relationship between the participant and the vicarious memory protagonist (parent or friend). Vicarious stories the participants heard from a friend were rated less central to the participants' identity than vicarious stories the participants heard from a parent. Personal memory reports the participant told a friend were rated more central to the participants' identity than personal memories the participants told parents. For both centrality variables, the difference in memory centrality between the friend and parent condition was greater for vicarious memories than personal memory reports. Overall, participants rated personal memories higher than vicarious memories on all variables; however, the researchers observed that the pattern of ratings was similar between vicarious and personal memory reports. These results were consistent with findings from other researchers (Lind & Thomsen, 2018; Panattoni & Thomsen, 2018; Thomsen & Pillemer, 2017) and suggest that vicarious memory and personal memory have similar phenomenological qualities and serve the same functions.

**Vicarious trauma.** In the Diagnostic and Statistical Manual of Mental Health Disorders, Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013) trauma and stressor-related disorders include conditions in which psychopathology results from exposure to a trauma or a stressful event. In the DSM-5 criteria for both post-traumatic

stress disorder (PTSD) and acute stress disorder, it is not necessary for an afflicted individual to have directly experienced the stressful event; these diagnoses also include traumatic events that an individual learned occurred to a family member or close friend. Specifically, for these disorders the DSM-5 criteria indicate that one must have experienced “exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways: 1. Directly experiencing the traumatic event 2. Witnessing, in person the event as it occurred to others 3. *Learning that the traumatic event occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event must have been violent or accidental.* 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event.” (APA, 2013, p. 271 and p. 280) In a systematic review, Friedman, Resick, Bryant and Brewin (2011) demonstrated that PTSD symptomology often occurs among family members of individuals who experienced a violent trauma or violent death, especially when the event involved homicide, physical assault or sexual assault.

Mirzamani and Bolton (2003) examined the psychological functioning of mothers whose adolescent children survived the sinking of a cruise ship. They discovered the prevalence of psychopathology prior to the cruise ship sinking was comparable to women in the general population (22.62%). Six years following the sinking of the cruise ship, the researchers discovered a 54.1% prevalence of a psychological diagnosis among mothers of survivors (43.2% major depressive disorder, 32.4% anxiety disorder). The prevalence of psychopathology was much higher than the control group of women who did not experience major negative life events (6.7%). This highlights that although the mothers

did not directly experience the sinking of the cruise ship, learning of their children's involvement likely had a significant impact on their own mental health.

Several studies have highlighted the impact of events not directly experienced. The literature emphasizes that directly experienced events more strongly predict PTSD symptomology than indirectly experienced events (Anders, 2011; Friedman et al., 2011); but the finding that indirectly experienced events can lead to trauma responses has important implications (Friedman et al., 2011). The American Psychological Association (2013) acknowledges that events that one does not directly experience can have a drastic impact on psychological functioning, which provides a strong rationale for the continued study of negative impact of vicarious memories, but also suggests that it may be fruitful to explore the impact of positive vicarious memory.

Consistent with the clinical literature, within the memory field, research on vicarious memory has largely focused on vicarious trauma (Cohen & Collens, 2013; Pillemer et al, 2015). Vicarious trauma is the negative experience of people, typically trauma workers, resulting from a cumulative and empathic relationship with someone who has disclosed the experience of a traumatic event (Cohen & Collens, 2013). People who experience vicarious trauma may exhibit symptoms similar to personal trauma, such as emotional and somatic reactions, which may persist long-term after hearing the traumatic story (Cohen & Collens, 2013; Shamai & Ron, 2009). Vicarious trauma may present as sadness, anger, frustration, powerlessness or other negative emotions (Satkunanayagam, Tunariu & Tribe, 2010). Trauma counsellors who have experienced vicarious trauma have reported numbness, nausea and tiredness (Iliffe & Steed, 2000; Pistorius, Feinauer, Harper, Stahmann & Miller, 2008). Vicarious trauma can impact the

way people view themselves, others and the world (Cohen & Collens, 2013; McCann & Pearlman, 1990); for example, one may develop the belief that the world is unsafe or that people cannot be trusted (Cohen & Collens, 2013). Gender plays a role in who is likely to develop a vicarious traumatization response. Robinson-Keilig (2014) found that women mental health therapists are more likely to experience symptoms of vicarious trauma than men mental health therapists.

In contrast to the negative outcomes of vicarious trauma, researchers have also found that trauma workers may experience posttraumatic growth in response to hearing traumatic stories from their clients. Post-traumatic growth refers to a positive psychological change following trauma (Tedeschi, Calhoun & Cann, 2007); however, post-traumatic growth typically only occurs in the vicarious memory narrator if the individual who directly experienced the trauma exhibits growth and recovery (Cohen & Collens, 2013). The type of trauma that is vicariously experienced may influence whether there will be positive or negative outcomes following vicarious traumatization (Cohen & Collens, 2013; Iliffe & Steed, 2000). Researchers have found that trauma workers who experience a negative change in their sense of self in response to vicarious trauma most likely work with victims of sexual abuse or domestic violence (Cohen & Collens, 2013; Iliffe & Steed, 2000). These studies of vicarious trauma demonstrate the significant impact that vicarious memories can have on individuals. The impact of vicarious trauma, particularly among therapists, has been examined in the literature (e.g. Cohen & Collens, 2013; Satkunanayagam et al., 2010, Iliffe & Steed, 2000, Pistorius et al., 2008); however literature examining the impact of positive vicarious memories is in its infancy (e.g. Panattoni & Thomsen, 2018; Lind & Thomsen, 2017). Considering the dramatic impact



of vicarious memory on trauma workers, research must continue expanding to examine the significance of vicarious memories that are not necessarily traumatic. In addition, people who do not engage in trauma-work frequently listen to both positive and negative stories about the experiences of close others. The study of vicarious memories must expand to account for positive memories within the context of therapists, but also as it relates to the general population.

**Intergenerational narratives.** Intergenerational narratives are a specific type of vicarious memory. Merrill and Fivush (2016) define intergenerational narratives as stories people know about the childhood of their parents or grandparents. They stated that sharing personal stories between family generations can contribute to individual identity development by creating links between generations. Intergenerational narratives have particular significance to identity development and self-knowledge in the period of adolescence and emerging adulthood (Fivush, Habermas et al., 2011; Merrill & Fivush, 2016; Merrill, Srinivas & Fivush, 2017). The content of intergenerational narratives often reflects relationships, overcoming hardships and survival, and typically serve the function of transmitting family values, family beliefs, and family identity (Taylor, Fisackerly, Mauren & Taylor, 2013).

There is an association between knowledge of family history and positive outcomes for adolescents (Duke, Lazarus & Fivush, 2008; Fivush, Bohanek & Zaman, 2011; Merrill et al., 2017). Adolescents who know more about their family history, in comparison to adolescents who know less about their family history, tend to have better family functioning, higher well-being, and less psychopathology (Duke et al., 2008; Merrill et al., 2017). Furthermore, Fivush and Zaman (2014) discovered that adolescents

who report intergenerational narratives in a manner that is elaborative and coherent, are more emotionally secure and have better relationships with their parents than adolescents who are less elaborative and coherent. These results suggest that knowledge of the life experiences of others, especially family members, has implications for interpersonal connectedness and identity development.

As discussed above, there are gender differences in autobiographical memory recall in which women are more elaborative and emotionally expressive than men (Grysmann & Hudson, 2013). Researchers have examined gender differences in intergenerational narrative recall, and concluded that there are significant differences in narratives between women and men when describing personal memories; however, there are only minor gender differences among adolescents when describing intergenerational stories (Zaman & Fivush, 2011).

For intergenerational narratives, gender differences arise when considering the gender of the parent who shared the intergenerational narrative (mother or father). When adolescents are asked to recall events that their parents experienced, both men and women tend to be more elaborative and make more references to emotions when recalling narratives about mothers in comparison to fathers (Zaman & Fivush, 2011). Furthermore, the themes of intergenerational narratives differ depending on which parent experienced the event. Narratives about fathers tend to include themes of achievement more so than mothers. These results suggest that adolescents take on the perspective of the vicarious memory protagonist when retelling the event (Merrill et al., 2017; Zaman & Fivush, 2011).

**Narrative ecologies.** McLean and Breen's (2015) concept of narrative ecologies emphasizes that one person's development is embedded within social interactions. McLean and Breen (2015) posited that individuals are shaped by their personal experiences, but learning stories of others' experiences also shapes them; this includes family stories, stories from friends, cultural stories and even stories from books or television (Breen, McLean, Cairney & McAdams, 2017; Fivush & Merrill, 2016; McLean, 2016; Merrill & Fivush, 2016). McLean (2016) described the center of the narrative ecology as the individual's narrative identity; this resembles Bronfenbrenner's (1979) ecological systems theory. Narrative identity is influenced by many systems; the innermost system is the memory of personal experiences, for example, memories of high points and low points. The second innermost system within the narrative ecology is the stories that other people tell. This system includes stories of one's friends, family members, romantic partners and teachers. It is within this system that vicarious memories exist. The outermost system within the narrative ecology includes cultural stories, which includes stories that exist within the culture, such as events that impact one's cultural group (e.g., 9/11), historical stories, fairy-tales and religious stories (McLean, 2016). Furthermore, this outermost layer may also include movies, books and other forms of media (Breen et al., 2017). Each narrative system may impact other narrative systems, all of which impact one's narrative identity (McLean, 2016).

Fivush and Merrill (2016) further adapted Bronfenbrenner's (1979) ecological systems theory to describe intergenerational narratives. They posit that intergenerational narratives can shape one's identity through three narrative systems, the micro-system, the exo-system and the macro-system. The micro-system includes stories of events which the

child and family experienced together. This refers to parents and children reminiscing about shared experiences. The exo-system is the second system, which includes family stories in which the listener was not present. All narratives within the exo-system are defined as vicarious narratives. When parents tell stories about events that children have not directly experienced, the stories may take one of two forms. Parents may share stories of events from their current lives (e.g. experiences at work) or parents may share narratives of events from their own childhood (intergenerational narratives).

Intergenerational narratives are childhood stories told to children by parents or grandparents. Fivush and Merrill (2016) noted that intergenerational narratives are often shared in the context of the listener's life (e.g. "*When I was your age, I was also afraid of spiders...*"). They elaborated that intergenerational narratives create links between parents and children, which may help children make sense of current experiences.

Intergenerational narratives also provide information to the children about shared family traits, which may contribute to identity development. The final level of the system is the macro-system, which includes stories in which the narrative protagonists are more distant to the listener. It may include stories of family history or stories about extended family members.

**Autobiographical reasoning in vicarious memories.** Few studies have examined meaning-making in the form of transmission of family values from one generation to the next (Merrill et al., 2017; Pratt, Norris, Shannon, Hebblethwaite & Arnold, 2008). Pratt et al. (2008) asked adolescents to identify personal values and describe how a parent and a grandparent taught them about a currently held value. This study did not specifically focus on intergeneration narratives; participants were allowed to recall stories that a

family member shared to demonstrate a value, or an interaction with a family member that illustrated a value. They found that participants recalled a family story, rather than an interaction, in approximately 30% of instances. These results suggest that adolescents can adopt values based from stories they hear secondhand from family members.

To further examine interpretive content and values within family stories, Merrill et al. (2017) conducted a study in which they examined meaning-making processes within transgression and pride narratives among college students. For each type of narrative, participants were asked to write about a personal event, and two intergenerational stories (one for each parent). The researchers coded all six narratives for evaluative content and interpretive processes. This was the first study to examine interpretive processes within vicarious narratives and personal narratives. Merrill et al. (2017) discovered that the amount of evaluative content did not differ between the participants' personal narratives and their maternal intergenerational narratives; however, both these narratives had significantly more evaluative content than the paternal intergenerational narratives. This relationship held true for men and women participants.

Reese et al. (2017) examined self-event connections within intergenerational narratives of three different cultural groups. They found that adolescents from interdependently oriented cultures produce a higher frequency of self-event connections than independently oriented cultures. These findings indicate that adolescents do produce self-event connections when describing events that they have not directly experienced, and the importance of intergenerational narratives for identity development may differ between cultures.

One other study has examined autobiographical reasoning in vicarious memory without specifically targeting intergenerational narratives (Lind & Thomsen, 2018). Lind and Thomsen (2018) conducted a study in which they examined causal connections, a specific type of self-event connection, within vicarious memory reports. Causal connections explicitly link a past event to the current self by attributing a past event to a personal change (Habermas & Bluck, 2000; McLean et al., 2007). For example, one may attribute one particular event to a change in their relationship with their mother, or the development of a personal trait such as empathy. Lind and Thomsen (2018) contrasted personal and vicarious life stories in the form of life story chapters within high school students. They elicited personal and vicarious chapters using a written questionnaire, and participants were permitted to recall the vicarious life chapters of anyone in their life. Lind and Thomsen (2018) did not observe gender differences for the vicarious protagonist for any variables. They concluded that identity disturbance was associated with fewer positive causal connections in personal and vicarious life stories. They also discovered that identity disturbance was associated with fewer positive chapters in personal life stories. They also examined empathy and found no relation between causal connections and vicarious life story chapters, although empathy was positively correlated with the frequency of positive connections in personal life story chapters. Overall, they concluded that vicarious life stories, in the form of chapters, do not directly contribute to identity; rather, they are related to personal life stories, and thus may indirectly impact identity. An important finding was that the participants did use autobiographical reasoning in vicarious memories.

Taken together, there is new research that indicates meaning-making processes are not specific to events personally experienced. People make personally relevant meaning from stories of the experiences of others. This new finding has major implications for the memory literature, and it will be necessary to study these issues further.

**Vicarious memory and memory frameworks.** Current memory frameworks classify vicarious memories as semantic memories and only the specific memory of hearing another person talk about his or her experience is classified as an episodic memory (Pillemer et al., 2015; Tulving 1972, 1985, 2002). Vicarious memory is classified as a semantic memory despite evidence indicating that vicarious memory meets many of the criteria of episodic memory. Rubin and Umanath's (2015) recent conceptualization of event memory is broader than Tulving's framework of episodic memory (1972; 1985; 2002), and it accounts for both personal memories and vicarious memories.

Rubin and Umanath (2015) describe the concept of event memory, which is broadly defined as memories of events. Event memory encompasses memories of personally experienced events, imagined future events, and events not directly experienced (vicarious memories). Rubin and Umanath (2015) describe episodic memory as a type of event memory, and state that event memory is broader than episodic memory (Marsh & Roediger, 2013; Schacter et al., 2000; Tulving, 1972, 1985, 2002). Rubin and Umanath (2015) contrasted event memory with episodic memory and differentiated event memory as possessing the following characteristics: 1) construction of a mental scene, rather than a sense of reliving the event, 2) repeated events in addition to specific events, and 3) inclusion of events experienced by others in addition to the self. The defining

characteristic of event memory is a mentally constructed scene (Rubin & Umanath, 2015). They suggest that construction of a mental scene is more appropriate for the definition of event memory than a sense of reliving because in order to have auto-noetic consciousness one must also have a mentally constructed scene, while one can relive an event without constructing a mental scene (e.g. in the case of *déjà vu*). Rubin and Umanath (2015) stated that event memory is not restricted to specific one-time events. It encompasses memories of events that were experienced on numerous occasions (repeated events). They suggested that when people experience similar events on multiple occasions they are able to recall the memory of the repeated event in a way that is consistent with a specific event. The authors also highlighted that it is not necessary for the vicarious narrator to have experienced the event in the past; their conceptualization allows for imagined future events, or events that were heard secondhand. They suggested that people have event memory in reference to the experiences of friends, family, and even fictional characters (Breen et al., 2017; Lind & Thomsen, 2018; Merrill & Fivush, 2016; Merrill et al., 2017; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Reese et al., 2017; Rubin & Umanath, 2015; Thomsen and Pillemer, 2017). Rubin and Umanath (2015) noted that like episodic memory, event memory does not include general knowledge (semantic memory); however, they did emphasize the interdependent relationship between memories of past events and general knowledge. They suggested that general knowledge organizes recall of specific events and it is crucial in constructing a mental scene (Rubin & Umanath, 2015; Thomsen, 2009).

Current models of episodic memory only include events that individuals have directly experienced (Pillemer et al., 2015; Tulving, 1972, 2002); but recent research



argues that these models of episodic memory are too restrictive and should expand to include vicarious memory reports (Pillemer et al., 2015; Rubin & Umanath, 2015; Thomsen & Pillemer, 2017; Merrill et al., 2017; Panattoni & Thomsen, 2018). The present study is consistent with this expanded definition of event memory.

### **The Current Study**

The aims of the current study were twofold. The first objective was to expand the work of Pillemer et al.'s (2015) study in a number of ways. Similar to what they did, I compared personal and vicarious memory reports in terms of memory functions, memory centrality and phenomenological qualities; however, the current study expands on Pillemer et al. (2015) by targeting highly emotional memories rather than everyday events. Furthermore, unlike Pillemer et al. (2015) the current study allowed participants to recall vicarious memories without being limited to the experiences of friends or parents. In addition, Pillemer et al. (2015) asked for specific memory reports; in contrast, participants within the current study were encouraged to recall any type of memory report, rather than simply a specific memory, which provided the opportunity for participants to recall repeated and extended memory reports, in addition to specific memory reports.

A second objective of this study was to expand Merrill et al.'s (2016) study by examining self-event connections within highly emotional personal narratives and highly emotional vicarious narratives. Consistent with Merrill et al. (2016), associations between self-event connections, identity and psychopathology were explored. This study expanded on Merrill et al. (2016) by examining self-event connections (and relations to identity and

psychological distress) within vicarious memory reports in addition to personal memory reports.

These objectives were addressed by conducting one-on-one interviews with university students, in which they described four highly emotional memories. All participants were asked to describe the details of a highly positive personal event and a highly negative personal event. They were also asked to describe a highly positive event that they heard about secondhand, and a highly negative event they heard about secondhand. Participants were asked follow-up questions about each memory, and completed self-report questionnaires about psychological distress, identity distress and identity development.

By comparing personal and vicarious memories based on memory functions, memory centrality, phenomenological qualities and self-event connections this research provides valuable information on whether vicarious memory should be included in conceptualizations of episodic memory. Specific research questions and associated hypotheses are presented below:

**Research question 1.** How do vicarious memory reports compare to personal memory reports in terms of memory qualities, memory centrality and memory functions?

*Hypothesis:* It was hypothesized that the ratings of vicarious memory reports would follow the same pattern as personal memory reports; yet, it was expected that all memory variables (except negative emotional saturation) would be rated significantly higher for personal memory reports than vicarious memory reports.

**Research question 2.** How do self-event connections compare in vicarious and personal memory reports, in terms of type and frequency?

*Hypothesis:* It was hypothesized that participants would produce more self-event connections in personal narratives in comparison to vicarious narratives.

**Research question 3.** What are the relations between event centrality, psychological distress and self-event connection valence? If relations exist between these variables, does the valence of self-event connection mediate the relationship between memory centrality and psychological distress? Do these relations differ between personal and vicarious memory reports?

*Hypothesis:* It was hypothesized that memory centrality would be positively correlated with psychological distress for negative memories, but memory centrality would not correlate with psychological distress for positive memories. It was also hypothesized that there would be a positive correlation between negative self-event connections and centrality of negative events. It was hypothesized that people who produce more negative self-event connections in negative events would exhibit more psychological distress. Furthermore, it was hypothesized that the valence of self-event connections mediates the relationship between memory centrality and psychological distress. That is, individuals who identify negative events as central to their identity and describe these events using negative self-event connections would have more psychological distress than individuals who identify negative events as central to their identity and described these events using positive self-event connections. It was hypothesized that these relations would be present for both personal and vicarious memory reports.

**Research question 4.** Are positive or negative self-event connections associated with identity? Is the relationship the same for personal and vicarious memory reports?

*Hypothesis #4:* It was hypothesized that individuals who generated more positive self-event connections would have more identity development, whereas individuals with more negative self-event connections would have more identity distress. It was hypothesized that this pattern would exist for both personal and vicarious memory reports.

## **Methodology**

### **Participants**

An a priori power analysis was conducted using the software package G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007) to estimate how many participants were needed for acceptable statistical power. To detect an effect size midway between small and medium (.175) and to obtain statistical power at the recommended level (.80), 68 participants were needed, 34 men and 34 women. When the minimum number of men and women had participated, data collection continued until the end of the respective academic semester. Data collection began in July 2016 and ended in April 2017.

A total of 174 participants were recruited from the St. John's campus of Memorial University of Newfoundland. There were two main exclusionary criteria: age and language fluency. The first exclusionary criterion of age was enforced due to potential differences in identity development. Late adolescence and young adulthood fall within the developmental period of emerging adulthood (Arnett, 2000). Individuals in emerging adulthood are not as dependent on others as they were in their childhood and adolescence, but they do not yet have the responsibilities of later adulthood. In emerging adulthood, individuals have many possible directions in their lives because little about their future is decided. During this period, people typically have opportunity for identity exploration; therefore, it is a key developmental stage for identity development (Arnett, 2000). This

population is often referred to as a “convenience sample,” (Henrich, Heine & Norenzayan, 2010), which limits the generalizability of the results, but the age group is relevant to the current research questions.

Although not directly assessed within the current study, the ethnic make-up of the Memorial University student population is predominately Caucasian. A previous research study used identical recruitment techniques to recruit university students for a one-on-one memory interview (Ginsburg, 2016). In this study, data collection occurred between May 2013 and August 2014 and 77% of participants identified as Caucasian, 19% identified as Canadian and 4% identified as Asian or Indigenous. The current study conducted data collection between July 2016 and April 2017. It is likely that the demographics of the current study closely mirror the demographics from Ginsburg (2016). The large proportion of Caucasian participants closely mirrors the ethnic make-up of Newfoundland. A 2016 Statistics Canada census (Statistics Canada, 2017) of St. John’s Newfoundland revealed that only 4.7% of the population of St. John’s, NL identify as a visible ethnic minority. The majority of the population of St. John’s, NL identify as Caucasian and of European origin. Therefore, the current study has limited generalizability to ethnic groups that are not Caucasian.

Originally, participants ranged in age from 16 to 72 and after examining the descriptive data it was decided that people over 29.99 years of age would be excluded. There were 16 participants (5 women) 30 years of age and older who were not included in statistical analyses. There was also one participant (male) who was 16.44 years of age, he was 1.43 years younger than the next youngest participant (age 17.87) and was therefore not included in any statistical analyses.

All interviews were conducted in English; therefore, it was a requirement for participants to be fluent in their use of the English language. In the interview, participants reported the languages they used in their home before starting school and details about their acquisition of English (see Appendix A), and Language Fluency assessments were conducted for all participants who spoke less than 75% English before school (see Appendix B for Language Fluency Assessment). A research assistant familiar with the study and I conducted the language fluency assessments. For all language fluency assessments, the two raters listened to the audio recording of the positive personal memory report. It was expected that assessment of the positive personal narratives for all participants would provide the most representative estimate of language fluency. The two raters assessed 19 participants for language fluency and there was 84% agreement ( $n = 16$ ; 15 identified as fluent, one identified as not fluent). There were three participants for whom the raters disagreed about language fluency, and a third rater blind to the ratings of the initial two raters subsequently assessed these participants. Overall, two participants were eliminated due to limitations in English fluency: the original two raters eliminated one participant, and the third rater eliminated one participant.

The majority of the sample ( $n = 109$ ) participated in return for course credit in undergraduate psychology courses. This was done through the Psychology Research Experience Pool (PREP), and the university ethics board approved the current project to participate in this program. Participants recruited through PREP were entitled to receive course credit regardless of whether or not they chose to withdraw their data from statistical analyses; ten participants chose to withdraw their data. The remaining participants were recruited through posters displayed on campus (see recruitment poster

in Appendix C), e-mails sent to all psychology students (see Appendix D) and class presentations by me. As an incentive, all participants who were not part of PREP ( $n = 36$ ) were given the opportunity to enter in a draw to win a \$200 gift card to a local shopping mall (see gift card consent form in Appendix E).

Three additional participants were excluded due to incomplete interviews or comprehension issues. One participant was unable to recall a positive vicarious event. A second participant recalled a positive personal memory report from the morning of the interview, thus not adhering to the criterion that events must have occurred at least seven days prior to the interview. A third participant recalled four appropriate memories; however, she withdrew consent for the negative vicarious memory report to be included in statistical analyses. It was decided that all three participants would be excluded from statistical analyses.

Overall, 17 were eliminated due to age restrictions and 2 were eliminated due to language restrictions. Ten participants withdrew consent for their data to be analyzed or withdrew their consent to participate in the study. One participant withdrew consent for one memory to be included in the analyses and finally, two participants were excluded due to comprehension issues or incomplete interviews. See Figure 1 for a summary of the participants excluded. The final sample size was 142 (101 women). Participants ranged in age from 17.87 to 29.99 ( $M = 21.56$ ,  $SD = 3.08$ ).

Six women, five research assistants and I, conducted the interviews. I used a multi-step approach to train the research assistants. First, I met with the research assistants to review the procedure and learn about the study. The research assistants listened to a full interview that I had previously conducted. Next, the research assistants

conducted one interview, and I observed and provided guidance as needed. I provided detailed feedback to the research assistants on their performance. Finally, each research assistant met with an expert interviewer to review the audio file of her interview. The expert provided additional feedback to the research assistants and with her approval, the research assistants began to independently conduct interviews. I conducted 25.4% of the interviews ( $n = 36$ ), research assistant #1 conducted 33.8% of the interviews ( $n = 48$ ) and research assistant #2 conducted 22.5% of the interviews ( $n = 32$ ). The remaining 18.3% of interviews ( $n = 26$ ) were conducted by three additional research assistants.

### **Measures**

**Memory recall task.** Participants were asked to recall a “very positive” and “very negative” memory of an event that they had personally experienced. They were also asked to recall a “very positive” and “very negative” vicarious memory (a narrative of an event that a family member, friend or romantic partner had previously told the participant). To count as a vicarious memory, it was necessary that the participant was not present at the time the individual experienced the event. The order in which participants were asked to verbally recall vicarious memory reports and personal memory reports was counterbalanced. Half of the participants were initially asked to recall two vicarious memory reports and the other half of the participants were initially asked to recall two personal memory reports. For both vicarious and personal memory reports, the participants were asked to recall the negative memory report before the positive memory report. This was the protocol to avoid ending the session immediately after discussing a negative memory, which could contribute to feelings of distress. For personal memory reports, the event must have occurred at least seven days prior to the interview. For



vicarious memory reports, the participant must have first heard about the event at least seven days prior to the interview. The prompt for the vicarious memory is as follows:

*Vicarious Memory (Negative): “In personal relationships, people often share memories of life events. Sometimes people tell others about a detailed personal event from their own life. Think back over your past interactions with an immediate family member, an extended family member, a friend or a romantic partner, and try to identify a memory you have of a very negative event from someone else’s life. The event can be from any time in this person’s life and should be something that happened when you were not present. Sometimes an event in someone’s life is described to you so vividly that you remember it almost as if it had happened to you. Other times, events from other people’s lives are simply shared as stories. Be as specific and detailed as possible, including descriptions of people, places and feelings. Remember, this should be a highly negative memory about something that happened to someone else.”*

The prompt for the personal memory is as followed:

*Personal Memory (negative): “In personal relationships, people often share memories of life events. Sometimes people tell others about a detailed personal event from their own life. Think of a memory of a very negative event you have experienced and later told another person. The event can be from any time in your life. Be as specific and detailed as possible, including descriptions of people, places and feelings. The person to whom you told this memory could be an immediate family member, an extended family member, a friend or romantic partner. Remember, this should be a highly negative memory about something that happened to you.”*

Prompts for both personal and vicarious memories were altered to elicit positive memory reports.

Participants were asked to report as many details as possible about each event they recalled. For the vicarious memories, it was emphasized that participants were to recall the event that the vicarious memory protagonist experienced, rather than the moment in which they personally heard about the event. For more information on this task see Appendix F.

**Centrality of events scale.** The Centrality of events scale (7-item version) (CES-7; Berntsen & Rubin, 2006) is a 7-item questionnaire that measures the extent that an

event is central to one's identity and life story. Individuals rate the extent that they agree with various statements on a scale of 1 (*totally disagree*) to 5 (*totally agree*). In the current study, the participants were asked four adapted questions from the CES-7 for each of the four memories. These four adapted questions were also used in the study conducted by Pillemer et al., (2015). The questions selected for the current study include: 1) "*my memory of this event has become a part of my identity*"; 2) "*my memory of this event has become a reference point for the way I understand myself and the world*"; 3) "*My memory of this event has become a central part of my life story*"; 4) "*My memory of this event colours the way I think and feel about other experiences.*" For some analyses, each item assessing memory centrality was examined separately, while for other analyses, the mean memory centrality ratings were calculated for each of the four memory reports to provide an overall indicator of memory centrality. Berntsen and Rubin (2006) identified the CES-7 to have good internal consistency (Cronbach's  $\alpha = .88$ ). In the current study, internal consistency was calculated for the modified four-item CES across each of the four memory types. Cronbach's  $\alpha$  was determined to be .78, .89, .84, and .83 for vicarious negative, vicarious positive, personal negative and personal positive memories respectively, which suggests good internal consistency for this modified CES across all memory types.

**Identity distress survey.** The identity distress survey (Berman et al., 2004) is a 10-item self-report questionnaire that assesses distress resulting from unresolved identity issues. On a 5-point scale, participants rate the degree that they have been distressed in response to life issues (ranging from not at all to very severely). This scale consists of seven domains, including long terms goals, career choices, friendships, sexual orientation,

religion, values/beliefs and group loyalties. Participants rate how long they have been distressed and the extent that identity distress is impacting their functioning. The identity distress survey has been found to have good psychometric properties, with Cronbach's  $\alpha$  at .84, and test-retest reliability of .82 (Berman et al., 2004). Consistent with the study conducted by Merrill et al., (2016), only the response to item #8 on this survey was used to measure identity distress. For this item, the participants were asked to rate the severity of distress associated with identity issues on a scale from one to five. See Appendix G.

**Ego identity process questionnaire (EIPQ).** The Ego Identity Process questionnaire (EIPQ; Balistreri et al., 1995) is a 32 item self-report that assesses the extent that one has engaged in both identity exploration and identity commitment. Identity exploration refers to the examination and questioning of potential identities that one may choose to adopt (Marcia, 1996). Identity commitment refers to identity related choices that one has made in his or her life (Marcia, 1996). Participants respond to each question on 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). The EIPQ has been found to have good psychometric properties. Cronbach's  $\alpha$  for the exploration scale has been identified as 0.90, and Cronbach's  $\alpha$  for the commitment scale has been identified as .75 (Balistreri et al., 1995). Balistreri et al. (1995) identified the test-retest reliability as .76. The exploration and the commitment scales of the EIPQ were each summed and entered as continuous variables for all relevant statistical analyses. See Appendix H for the questionnaire.

**The depression anxiety stress scales 21 (DASS-21).** The Depression Anxiety Stress Scales 21 (DASS-21; Lovibond & Lovibond, 1995) is a shortened version of the 42-item Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995). The

DASS-21 is a self-report questionnaire that consists of three 7-item subscales: depression, anxiety and stress. Each item is a statement and the participants rate the extent to which they experienced various symptoms over the past week, using a four-point scale (0 = *never* to 3 = *almost always*). The total scale has demonstrated good internal consistency, Cronbach's  $\alpha = .93$  (Henry & Crawford, 2005). Furthermore, each of the three subscales has demonstrated good internal consistency with Cronbach's  $\alpha = .88, .82$  and  $.90$  for depression, anxiety and stress respectively (Henry & Crawford, 2005). The DASS-21 has also been found to have good convergent and discriminant validity (Henry & Crawford, 2005). To obtain an overall score on the DASS-21, the rating for each set of items are summed and multiplied by 2, resulting in a total score ranging from 0 to 42. This summed score has been found to reflect psychological distress (Henry & Crawford, 2005). For statistical analyses, the overall DASS-21 score (sum of all items) was used to represent psychological distress as a continuous variable. The sums of each DASS-21 subscale score (depression, anxiety and stress) were also analyzed. See appendix I.

### **Procedure**

All participants were interviewed individually in a quiet room within the Psychology Department at Memorial University of Newfoundland. Interview duration was approximately one hour. The researcher explained the purpose of the study and obtained informed consent for participation in both the study (see Appendix J for the general consent form and Appendix K for the PREP-specific consent form) and the optional draw for the gift card (non-PREP participants only). The researcher obtained consent to audio record the interview and the session began with participants completing a demographic form (See Appendix L).

The memory tasks were completed before the questionnaires to prevent the emotional content of the questionnaire items from impacting content of the memories. The participants' memories were audio recorded and later transcribed for coding. Participants were asked to recall four memories. Two memory reports were personal memories and two memory reports were vicarious memories. Prior to recalling memories, participants were asked to write the names of five people who are or have been central to their life. These names were used to prime participants to think of vicarious memories that the participant associated with these individuals (see Appendix M). If the participants could not think of memory reports related to the listed people, they were encouraged to recall memories from people not listed. The purpose of this task was to give participants direction when they were later asked to recall vicarious memory reports.

The Memory Recall Task was the majority of the interview (described above). For each of the four narratives the participants were asked to recall as many details as possible. After recalling each memory report, the participants were verbally asked an additional five questions about each memory. Participants also completed a written questionnaire with 23 additional questions for each memory (see Appendix N).

On the questionnaires, the self, social and directive memory functions for each of the four memory reports were examined. The questions for memory function were assessed on a 5-point scale and were the same as those used by Pillemer et al. (2015). For personal memory reports, the participants identified the extent to which the memory helps them better understand themselves, the extent that the memory makes them feel better about themselves, the extent that the memory influences their relationships with others, the extent that the memory helps them solve problems in their lives and the extent that the

memory impacts life decisions. For vicarious memory reports, participants identified the extent that the memory helps them understand their family member/friend, the extent that the memory makes them feel closer to their family member/friend, the extent that the memory influences relationships with others, the extent that the memory helps the participants to solve problems in their lives, and the extent to which the memory impacts the participants' life decisions.

Two questions were used to assess memory significance. For one item, significance of memory reports was assessed in a manner similar the study by Peterson et al. (2015). After each memory report was recalled, participants were asked to rate on a Likert scale the significance of each memory. On this scale, 1 was “*definitely not important*” and 7 was “*definitely important.*” The second item assessing memory significance was similar to the Pillemer et al. (2015) study. Participants were asked to rate on a 7-point scale how likely they are to tell their (future) children about each memory.

After the participants answered the follow-up questions to each of the four memories provided, they completed a distractor task that involved an easy Sudoku puzzle (see Appendix O). The purpose of the distractor task was to reduce highly emotional feelings that may have been associated with the memory reports. Participants had a maximum of five minutes to complete the puzzle. It was important that emotions associated with the memories did not influence the way in which the participants responded to the questionnaires. The order of the questionnaires was consistent for all participants. Participants completed the EIPQ, the IDS then the DASS-21. They were completed in this order due to the affective qualities of the items. The content of the DASS-21 focuses on psychopathology; it was expected that this measure was most likely

to trigger negative affect for the participants, thus potentially impact the results on subsequent questionnaires. As such, the DASS-21 was the final questionnaire completed by all participants. The EIPQ was judged to be the least affective of the questionnaires, as items pertain to beliefs and opinions. As such, the EIPQ was the first questionnaire administered as it was assumed to be limited in emotional content and unlikely to impact the affective state of the participants as they completed following questionnaires. Upon completion of the study participants were thanked and debriefed (see debrief form in Appendix P). The researcher offered to send the study results to participants upon completion of the doctoral dissertation. If the interviewer judged the participant to be distressed at any point during the interview, they were provided with contact information for mental health resources on campus. The University's Interdisciplinary Committee on Ethics in Human Research approved all aspects of the study.

### **Coding**

The interviewers completed partial coding of certain variables (e.g., specificity, vividness) during the interview. The interviewers asked the participants questions to determine how to code items. I reviewed all specificity coding completed by the interviewers. An experienced research assistant was consulted for memories that were ambiguous.

**Word counts.** The number of words provided by each participant was calculated on a per narrative basis. Three trained research assistants calculated word counts.

**Self-event connections.** Consistent with the study conducted by Merrill et al., (2016), self-event connections were coded from an adaptation of a coding scheme used in Banks and Salmon (2013). Self-event connections were coded as any statements in which

participants linked an aspect of a memory report to their current sense of self. To date, studies examining self-event connections have exclusively focused on personal memory reports, and as such I adapted the existing self-event coding scheme to use with personal and vicarious memories. When developing the adapted coding scheme, I consulted with a research assistant who had extensive experience working with other types of narrative coding schemes. This same research assistant worked with me to code the memory narratives for all participants in the study. The number of self-event connections were calculated on a per narrative basis and inter-rater agreement for approximately 20% of the participants ( $n = 28$ ) is represented by a Cohen's kappa of .87. Coding disagreements were resolved through discussions.

Across all memory narratives, self-event connections were coded within one of six categories: Current dispositions, which was defined as traits, characteristics, qualities, roles, generalized emotional reactions, or behaviours with implications for the self (e.g. "*I am the type of person who loves to solve conflicts*"). 2) Current values, which was identified as comments on morality, right and wrong and how one wants to project the self in the world. It also included evaluations of other self-event connections (e.g. "*it should never have happened in first place, it is very unfair*"). 3) Current outlook, which focused on one's attitude or perspective about the world, others, relationships or the self (e.g. "*there is nothing like doing something to make your parents proud.*"). 4) Current self-esteem/worth, which focused on increases or decreases in one's feeling of worth (e.g. "*it made me feel a bit more sure of myself, the fact that I reached my goal made me feel better about myself.*"). 5) Personal growth, which focused on maturing or developing confidence, strength, or other such aspects of one's personal development (e.g. "*it has*



*made me stronger*”). 6) Intimacy, which was a connection that changes, develops or reflects a relationship with someone else or a change in development in role relation to someone else (e.g. “*My mother and I don’t get along.*”).

The protagonist of the memory may have been the participant (personal memories) or someone else (vicarious memories). For personal memory narratives, self-event connections were also developed for the self, in that the participant was connecting an aspect of the past event to their current identity (e.g. “*I am now more confident about my athletic abilities*”). For vicarious memories, the connection may have been made for the participant, or for the individual who experienced the event (“e.g. *My husband feels like he does not belong in his family, they are all very serious and he is relaxed*”). When connections are coded for the individual who experienced the event of the vicarious memory, not the participant, self-event connections were coded based on the participant’s perspective. They may have shared their own conclusions about self-event connections for the other person, or they may have shared quotes from the other person highlighting a self-event connection.

A seventh category was developed for the current study in order to examine self-event connections within vicarious memories. Interpersonal connections could only occur within vicarious memories, and they were coded when the participants highlighted a connection between themselves and the vicarious memory protagonist; furthermore, the participant adopted the same value or perspective as the vicarious memory protagonist. For example, the vicarious memory protagonist may have held a particular value, outlook, or disposition, which the participant adopted after hearing the story. The participant connected him or herself to the vicarious memory protagonist. For example, “*seeing my*

*dad looking to do better in his life and make progress in his career pushes me to do the same.*” Unlike other self-event connection categories, when an interpersonal connection was identified it was sub-coded based on the type of self-event connection that was present and being adopted by the participant (e.g. values, dispositions, outlook) and it was sub-coded for the relationship of the person who experienced the vicarious memory (e.g. mother, father, sibling, friend).

Self-event connections for the four memories were further coded for valence. The coding scheme for valence consisted of four mutually exclusive categories: 1) positive connection, 2) neutral connection, 3) negative connection, and 4) mixed: positive and negative connection. Self-event connections were coded as positive when the statement referenced a positive characteristic of the self, or denoted a positive evaluation of the self (e.g. *“I now spend more time with my family”*). Self-event connections were coded as neutral when there was no evaluation of the self, or the connection was not clearly positive or negative (e.g., *“The event changed how I greet people.”*). Self-event connections were coded as negative when the statement referenced a negative characteristic of the self, or denoted a negative evaluation of the self (e.g. *“I am much less trusting of people now”*). Self-event connections were coded as mixed when the connection involved elements of both positive and negative meaning. These were often situations where participants learnt something (and thus could be considered an experience involving growth), but the lesson learnt had negative connotations (e.g., *“This experience taught me about the harsh realities of life”*). Self-event connections were only recorded as positive or negative if the self-characteristic highlighted was explicitly referred to as positive or negative by the participant or if it satisfied common cultural

understandings of desirable and undesirable characteristics (e.g., “*I gained a lot of self confidence*”). Inter-rater agreement for the valence of self-event connections (for approximately 20% of participants,  $n = 28$ ) is represented by a Cohen’s kappa of .87. Coding disagreements were resolved through discussions. For more detail about the coding scheme used in this study see the coding manual in Appendix Q for examples of self-event connections for each valence.

### Results

The aim of the current study was to answer the following research questions: 1) How do vicarious memory reports compare to personal memory reports in terms of memory qualities, memory functions and event centrality? 2) How do self-event connections compare between vicarious and personal memory reports, in terms of type and frequency? 3) What are the relations between event centrality, psychological distress and self-event connection valence? If relations exist between these variables, does the valence of self-event connection mediate the relationship between memory centrality and psychological distress? Do these relations differ between personal and vicarious memory reports? 4) Are positive or negative self-event connections associated with identity? Is the relationship the same for personal and vicarious memory reports?

Descriptive data are presented first, and results are presented in the order of the research questions.

#### Descriptive Data

**Memory incidence.** As described in the methodology section, two participants who met eligibility criteria (in terms of language and age) were excluded due to problems in their narrative recall. Although excluded from statistical analyses, it is relevant to

discuss those participants when describing memory incidence. Of the 144 participants who met eligibility for this study based on language and age, only one participant was unable to identify a vicarious memory (positive vicarious), and one participant recalled an inappropriate personal memory (positive personal) and was erroneously not corrected by the interviewer (neither of these participants were included in analyses). Overall, 100% of participants recalled a negative vicarious memory report ( $N = 144$ ) and negative personal memory report ( $N = 144$ ). Furthermore, 99.3% of participants recalled a positive vicarious memory report ( $n = 143$ ) and a positive personal memory report ( $n = 143$ ). These results indicate that highly emotional vicarious and personal memory reports were easily identified by participants.

**Relationships.** For vicarious memory reports, participants labeled their relationship to the person who experienced the event (vicarious memory protagonist). For personal memory reports, participants identified the first person who they told about the personally experienced event. The frequency of relationship types for each memory type are presented in Table 1. In the table, relationship categories include parent, other relative, friend, romantic partner and other. In many cases, the “other relative” descriptor referred to a sibling, though it could reference any relative, such as an aunt, uncle, grandparent, or cousin. For both positive and negative vicarious memory reports participants most often recalled a memory in which the vicarious memory protagonist was a parent or a friend. For personal memories, participants were most likely to report first disclosing their experience to either a parent or friend. It is important to note that although many of the vicarious memory reports were about the participants’ parents, they were not necessarily intergenerational memories. As described above, intergenerational memories

are stories people know about the childhood of their parents or grandparents (Merrill & Fivush, 2016). In the current study, intergenerational memories were not specifically examined, although they were included within the broader classification of vicarious memories. Within the current study, participants may have described events in which a parent was the vicarious memory protagonist; however, that would not necessarily count as an intergenerational narrative because it may reference either a childhood experience or an adult-experience. Although intergenerational narratives were not a specific focus of the current study, the frequency of intergenerational narratives was calculated. Based on Merrill and Fivush's (2016) definition of intergenerational narratives, two criteria must be met for a memory report to be an intergenerational narrative. The individual must have heard the story from a parent or grandparent, and the story must be about the childhood of that parent or grandparent. The operational definition of intergenerational narratives within the current study met the criteria proposed by Merrill and Fivush (2016); however, Merrill and Fivush (2016) did not specify an age range for the vicarious memory protagonist during the time of the event. For the current study, it was decided to include all narratives in which the age of the vicarious memory protagonist during the event was equal to or younger than the current age of the participant. Given that intergenerational narratives are often shared within the context of the listener's life, it was appropriate to include all narratives in which the vicarious memory protagonist was the same age or less than the participant. Of note, this may result in an overestimate of the frequency of intergenerational narratives because it includes some narratives in which the vicarious memory protagonist was in adulthood, rather than exclusively childhood. When all 142 participants were examined, parents or grandparents were frequently the vicarious

memory protagonist in the negative vicarious narratives ( $n = 49$ , 34.5%) and the positive vicarious narratives ( $n = 56$ , 39.4%). The frequency of intergenerational narratives was calculated as a proportion of all narratives in which a parent or grandparent was the vicarious memory protagonist. For the current definition of intergeneration narratives, 51.02% ( $n = 25$ ) of all negative vicarious memories (in which the vicarious memory protagonist was a parent or grandparent), and 35.71% ( $n = 20$ ) of positive vicarious memories (in which the vicarious memory protagonist was a parent or grandparent), were intergenerational narratives. These results suggest that intergenerational memories were common among the sample; however many of the vicarious memory reports provided from parents and grandparents were not intergenerational narratives.

**Memory specificity.** The frequency of specific and non-specific memories was calculated for each of the four memory types. Non-specific memory reports included both repeated and extended memories. Specific memories were generally more prevalent across all memory types (57.0% vicarious negative, 60.6% vicarious positive, 64.1% personal negative, 69.7% personal positive), although non-specific memories were also common (43.0% vicarious negative, 39.4% vicarious positive, 35.9% personal negative, 30.3% personal positive). See Table 2 for details.

**Memory descriptive reports.** Participants answered 28 follow-up questions for each memory report. For vicarious memory reports, participants reported the age in which they first heard about the event, how old the vicarious memory protagonist was at the time of the event, and the closeness of the relationship between the participant and the vicarious memory protagonist. For personal memory reports, participants reported the age that they experienced the event, the age that they first disclosed the event, and the

closeness of their relationship with the individual to whom they first disclosed the memory of the event. The means (and standard deviations) for these memory variables across positive and negative personal memory reports are presented in Table 3 and provided separately for men, women and the overall sample. With regards to personal memory reports for the overall sample, the average age during the event was 15.25 years (negative event) and 17.16 years (positive event). The number of years between the event and the interview date was 6.31 for negative events and 4.39 for positive events. Participants first disclosed the negative personal memory report when they were an average of 16.35 years of age, while the average age of disclosure for the positive personal memory report was 17.59 years. On a scale of one to five, participants rated the relationship closeness between themselves and the person to whom they initially disclosed the details of the event. For the negative personal memory report, participants rated the relationship quality as 4.48 out of five. For the positive personal memory report, participants rated the relationship quality as 4.51 out of five.

The means (and standard deviations) for the memory variables across the positive and negative vicarious memories are presented in Table 4 and provided separately for men, women and the overall sample. With regards to vicarious memory reports for the overall sample, the average age of first hearing the event was 16.75 years (negative event) and 16.38 years (positive event). The average number of years between initially hearing about the event and the interview date was 4.81 for negative events and 5.19 for positive events. Participants reported the age of the vicarious memory protagonist at the time of the event as an average of 21.81 years for negative events and 24.59 years for positive events. Finally, the participants rated the relationship quality between themselves and the

vicarious memory protagonist. The scale ranged from one to five, with five representing the closest relationship score. For the negative vicarious memory report, participants rated the relationship quality as a 4.59. For the positive vicarious memory report, participants rated the relationship quality as 4.49.

Consistent with Pillemer et al. (2015), two memory function questions were not directly comparable between vicarious and personal memories. The questions for personal memories were, “*This memory helps me better understand myself*” and “*This memory helps me feel better about myself.*” The questions for vicarious memories were “*This memory helps me better understand my family member/friend*” and “*This memory helps me feel closer to my family member/friend*” All items were rated on a five-point scale. The pattern of responding to these additional questions is presented in Figure 2. Each item was analyzed using a 2 (gender) x 2 (emotion) ANOVA in order to understand the impact of gender and emotion. For the memory function, “*This memory helps me better understand myself,*” within personal memories, there was no significant main effect of emotion,  $F(1, 140) = 1.97, p = .163$ , or gender,  $F(1, 140) = 2.67, p = .105$ . There was also no significant interaction between emotion and gender for this memory function,  $F(1, 140) < .001, p = .992$ . This indicates that positive and negative personal memories are comparable in the extent that they help people understand themselves.

For the memory function, “*This memory helps me feel better about myself,*” positive personal and negative personal memory reports were significantly different,  $F(1, 140) = 214.22, p < .001, \eta^2 = .61$ . Participants rated personal positive memories ( $EMM = 4.21$ ) as more important than negative memories ( $EMM = 2.02$ ) in serving the function of “*This memory helps me feel better about myself.*” There was no main effect of gender,



$F(1, 140) = 3.10, p = .081$ , and the interaction between emotion and gender was not significant,  $F(1, 140) = 0.11, p = .737$ . This result suggests that positive personal memories are more important than negative personal memories in building self-esteem.

For vicarious memories, the memory function, “*This memory helps me better understand my family member/friend,*” exhibited a significant main effect of emotion,  $F(1, 140) = 11.71, p = .001, \eta^2 = .077$ , in which participants rated negative memories ( $EMM = 3.98$ ) as more important for this function than positive memories ( $EMM = 3.62$ ). There was no significant main effect of gender  $F(1, 140) = .036, p = .850$ , and there was no significant interaction between gender and emotion,  $F(1, 140) = 2.09, p = .151$ . These results indicate that negative vicarious memories are more important than positive vicarious memories in helping people understand others.

For the vicarious memory function, “*This memory helps me feel closer to my family member/friend,*” participants rated positive vicarious memories and negative vicarious memories similarly. There was no main effect of emotion,  $F(1, 140) = 1.51, p = .222$ , or gender  $F(1, 140) = 2.86, p = .093$ . The interaction between emotion and gender was not significant for this memory function,  $F(1, 140) < 0.001, p = .993$ . This indicates that positive and negative memories are comparable in the extent that they help one feel close to others.

Narrative length was measured by counting the number of words provided by participants as they described their memory. Word count means and standard deviations for each narrative are split by gender and presented in Table 5. For negative vicarious memory reports, men produced an average of 261.3 words and women produced an average of 365.5 words. This pattern persisted for negative personal memories, in which

men produced an average of 378.1 words and women produced an average of 405.7 words.

**Self-event connections: valence frequency.** The mean frequency of self-event connections produced by participants for each memory is presented in Table 6. Means are presented separately for the overall sample, men and women. For both genders, and across all memory types, positive self-event connections were more frequent than negative, neutral or mixed self-event connection types. Means for mixed self-event connections (mean for each memory was less than 0.30) and neutral self-event connections (mean for each memory was less than 0.42) were so low that it was decided to include only positive and negative self-event connections in statistical analyses (consistent with Merrill et al., 2016).

**Self-event connections: category frequency.** Self-event connections were coded within one of seven mutually exclusive categories. Means for self-event connections frequency within the specific categories were so low that they were not included in statistical analyses on self-event connection categories. Qualitatively, it is noteworthy that across the four memory types, self-event connections were most often classified as outlook ( $M = 2.79$ ,  $SD = 1.86$ ), intimacy ( $M = 1.80$ ), personal growth ( $M = 1.75$ ) and values ( $M = 1.62$ ). The overall mean of self-event connections per category was calculated across all four narratives and are presented in Table 7. Means are presented separately for men, women and the overall sample.

**Clinical measures.** Men's and women's ratings on the clinical variables were analyzed using independent  $t$ -tests to explore gender differences. The DASS-21 is composed of three subscales, Depression, Anxiety and Stress, and when the subscales are

combined, they produce an overall measure of psychological distress. Psychological distress was compared between men and women, and three subscales of the DASS-21 were analyzed separately. Results are presented in Table 8.

In analyzing gender differences in psychological distress (total DASS-21 score), there was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .28$ ). There were no outliers in the data, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box. Women ( $M = 39.92$ ) endorsed significantly more psychological distress scores than men ( $M = 29.95$ ),  $t(140) = -2.29$ ,  $p = .024$ , Cohen's  $d = 0.47$ . For the Depression subscale of the DASS-21 there was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .41$ ). There was one outlier in depression scores for men, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box. It was decided to keep the single outlier in the analysis because it was not extreme, as it was not greater than the equivalent of three standard deviations. Men and women did not significantly differ in their scores on the Depression subscale of the DASS-21,  $t(140) = -.38$ ,  $p = .71$ . For the Anxiety subscale of the DASS-21, the assumption of homogeneity of variances was violated, as assessed by Levene's test for equality of variances ( $p = .02$ ). Welch's adjustment was used to account for unequal variances. There were no outliers in the data, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box. Women ( $M = 12.20$ ) obtained significantly higher scores on the Anxiety subscale than men ( $M = 7.56$ ),  $t(103.30) = -3.28$ ,  $p = .001$ , Cohen's  $d = 0.53$ . For the Stress subscale of the DASS-21, there was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .50$ ). There were no outliers in the data, as

assessed by inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box. Women ( $M = 17.37$ ) also obtained significantly higher mean Stress scores than men ( $M = 12.68$ ),  $t(140) = -2.70$ ,  $p = .008$ , Cohen's  $d = 0.50$ .

Identity development was assessed by the EIPQ, and was split into two subscales, the Identity Commitment subscale and the Identity Exploration subscale. For each subscale of the EIPQ gender differences were analyzed using independent  $t$ -tests. For the Identity Commitment subscale of the EIPQ, there was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .80$ ). There were three outliers for men in the scores for Identity Commitment, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box. Neither outlier extended more than three box-lengths away from the edge of their box and thus were not classified as extreme outliers. The three outliers were included in the independent  $t$ -test analysis. Men and women did not significantly differ on their mean scores of Identity Commitment,  $t(140) = -1.72$ ,  $p = .088$ . For the Exploration subscale of the EIPQ, there was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .77$ ). There was one outlier for men and one outlier for women in the scores for Identity Exploration, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box. Neither outlier extended more than three box-lengths away from the edge of their box and thus were not classified as extreme outliers. The two outliers were included in the independent  $t$ -test analysis. Men and women did not significantly differ on their mean scores of Identity Exploration,  $t(140) = 0.14$ ,  $p = .89$ .

Identity Distress, as measured by the IDS, was compared between genders using an independent  $t$ -test. For the IDS the assumption of homogeneity of variances was

violated, as assessed by Levene's test for equality of variances ( $p = .003$ ). Welch's adjustment was used to account for unequal variances. There were four outliers for women and one outlier for men in the scores for Identity Distress, as assessed by inspection of a boxplot for values greater than 1.5 box-lengths from the edge of the box. Neither outlier extended more than three box-lengths away from the edge of their box and thus were not classified as extreme outliers. The three outliers were included in the independent  $t$ -test analysis. Women ( $M = 3.04$ ) endorsed significantly higher Identity Distress than men ( $M = 2.46$ ),  $t(61.13) = -2.94$ ,  $p = .005$ , Cohen's  $d = 0.60$ .

Overall, a series of independent  $t$ -tests indicated that men and women were significantly different in terms of psychological distress ( $p = .024$ ), anxiety ( $p = .001$ ), stress ( $p = .008$ ) and Identity Distress ( $p = .005$ ). For each of these variables, women endorsed significantly higher scores than men. There were no significant gender differences on the depression subscale of the DASS-21 ( $p = .071$ ) or on either measure of identity development (Identity Commitment,  $p = .088$ ; Identity Exploration,  $p = .89$ ). These results suggest that men and women within this sample experience similar levels of depressive symptoms, identity commitment and identity exploration.

### **Research Question #1: How do Vicarious Memory Reports Compare to Personal Memory Reports in Terms of Memory Qualities, Memory Centrality, Memory Functions and Event Centrality?**

Research question #1 aimed to compare highly emotional vicarious and personal memories in terms of 12 memory variables and word counts. Two main analyses were conducted to answer this question. The first analysis was a  $2 \times 2 \times 2$  Memory Valence [positive, negative]  $\times$  Memory Type [personal, vicarious]  $\times$  Memory Order [vicarious

first, personal first]) multivariate analysis of variance (MANOVA) on the combined 12 dependent variables. Memory qualities were rated on a five-point scale and included vividness and emotional saturation (the degree that the event was positive and the degree that the event was negative). Personal significance of the memory was also included as a dependent variable within this analysis and was measured by two questions that were rated on seven-point scales. Participants rated the likelihood that they would include the memory in a personal biography and the likelihood that they would tell their future children about the event. Three items assessed memory functions and were rated on a 5-point scale, including, “*My memory of this event influences the relationships I have with others,*” “*My memory of this event helps me solve problems in my own life,*” and “*My memory of this event impacts my life decisions.*” Four items assessed memory centrality and were rated on a five-point scale, “*My memory of this event has become a part of my identity,*” “*My memory of this event has become a reference point for the way I see the world,*” “*My memory of this event has become a central part of my life story,*” and “*My memory of this event colours the way I think and feel about other experiences.*” The means and standard deviations for these variables are presented across the four memory types in Table 9.

The second analysis that addressed research question #1 was a 2 (memory valence)  $\times$  2 (memory type)  $\times$  2 (memory order)  $\times$  2 (gender) analysis of variance (ANOVA), in which word count was the dependent variable. Word count provided a measure of narrative length.

**Preliminary analyses.** A 2 (memory valence)  $\times$  2 (memory type)  $\times$  2 (memory order)  $\times$  2 (gender) MANOVA was conducted as a preliminary analysis in order to

identify whether memory order or gender were significant between-subjects factors that were necessary to include within the main analysis. The combined 12 memory variables described above were included as the dependent variable. It was found that gender was not statistically significant as a main effect or as part of any interaction; thus, gender was not included in the subsequent analyses. Memory order was significant and was, therefore, included in the main analyses. See Table 10 for results of the preliminary MANOVA.

**Narrative qualities: 2 (memory valence) × 2 (memory type) × 2 (order)**

**manova.** A three-way mixed-methods MANOVA was run to reduce the likelihood of familywise error when examining the effects of memory order, memory type and memory valence on the combined 12 variables of memory qualities. The assumption of Equality of Covariance Matrices was met, as assessed by a Box's M value of 1951.27,  $F(1176, 58894.69) = 1.051, p = .11$ ; see Table 11 for the MANOVA results). The patterns of participants' endorsements for items are contrasted between negative vicarious and negative personal memory reports and are presented in Figure 3. Ratings for positive vicarious and positive personal memory reports are presented in Figure 4. Participants' ratings of significance for negative memory reports are presented in Figure 5.

Participants' ratings of significance for positive memory reports are presented in Figure 6.

**Three-way interactions.** The MANOVA revealed a statistically significant three-way interaction between memory order, memory type and memory valence on the combined dependent variables,  $F(12, 129) = 2.24, p = .013$ , Wilks'  $\Lambda = .83$ , partial  $\eta^2 = .17$ . Univariate analyses revealed a significant three-way interaction between memory type, memory valence and memory order for seven of the 12 dependent variables.

Significance within the three-way interaction was revealed for: vividness,  $F(1, 140) = 13.49, p < .001, \eta^2 = .088$ , biographical significance,  $F(1, 140) = 14.62, p < .001, \eta^2 = .95$ , likelihood of telling future children,  $F(1, 140) = 5.16, p = .025, \eta^2 = .036$ , “*My memory of the event has become a part of my identity*”,  $F(1, 140) = 4.78, p = .031, \eta^2 = .033$ , “*My memory of the event has become a reference point for the way I understand myself and the world*”,  $F(1, 140) = 4.55, p = .035, \eta^2 = .033$ , “*My memory of the event has become central to my life story*”,  $F(1, 140) = 9.032, p = .003, \eta^2 = .061$  and “*My memory of the event colours the way I think and feel about other experiences*”,  $F(1, 140) = 7.57, p = .007, \eta^2 = .051$ . Emotional saturation (both positive and negative) and the three memory functions did not reach statistical significance for a three-way interaction between memory valence, memory type and memory order. Statistical significance of simple two-way interactions, simple main effects and simple simple main effects were accepted at a reduced alpha level of .01 to reduce the likelihood of familywise error.

*Simple two-way interactions.* There was a statistically significant simple two-way interaction between memory type and memory valence when personal memories were first for biographical significance,  $F(1, 71) = 18.75, p < .001$ , partial  $\eta^2 = .21$ . There was also a statistically significant simple two-way interaction between memory type and memory valence when vicarious memories were first for vividness,  $F(1, 69) = 7.21, p = .009$ , partial  $\eta^2 = .095$ . There were no significant simple two-way interactions for either of the remaining variables.

*Simple simple main effects.* To follow-up the significant simple two-way interaction between memory type and memory valence for biographical significance when personal memories were first, simple simple main effects were explored. When



personal memories were provided first, there was a statistically significant simple main effect of memory type for biographical significance within negative memory reports,  $F(1, 71) = 12.84, p = .001, \eta^2 = .15$ . The ratings for biographical significance were significantly greater for the personal memory reports (estimated marginal mean [EMM] = 4.74, standard error [SE] = 0.18) than the vicarious memory reports (EMM = 3.74, SE = 0.21). When personal memories were provided first, there was a statistically significant simple main effect of memory type for biographical significance within positive memories,  $F(1, 71) = 118.15, p < .001, \eta^2 = .63$ . The ratings for biographical significance were significantly higher for personal memory reports (EMM = 5.88, SE = 0.13) than vicarious memory reports (EMM = 3.31, SE = 0.22). These results suggest that personal memories are more personally important than vicarious memories regardless of memory valence. The simple main effect of memory valence on biographical significance was also explored. When personal memories were first, there was a significant simple main effect of memory valence on biographical significance for personal memories,  $F(1, 71) = 22.51, p < .001, \eta^2 = .24$ , but not for vicarious memories  $F(1, 71) = 2.47, p = .120$ . Positive personal memory reports (EMM = 5.88, SE = 0.13) were rated more personally significant than negative personal memories (EMM = 4.736, SE = 0.18), but there was no significant difference in ratings of biographical significance between positive and negative vicarious memory reports. See Figure 7. These results indicate that positive personal memory reports are more personally important than negative personal memory reports, while significance ratings of positive and negative vicarious memory reports do not differ.

To follow-up the significant simple two-way interaction between memory type and memory valence for vividness when vicarious memory reports were first, simple main effects were explored. When vicarious memory reports were provided first, there was a statistically significant simple main effect of memory type for vividness within negative memory reports,  $F(1, 69) = 199.61, p < .001, \eta^2 = .74$  and positive memory reports  $F(1, 69) = 57.13, p < .001, \eta^2 = .45$ . For negative memory reports, participants rated personal memory reports ( $EMM = 4.57, SE = 0.063$ ) as significantly more vivid than vicarious memory reports ( $EMM = 3.06, SE = 0.106$ ), see Figure 8. Similarly, for positive memory reports, participants rated personal memory reports ( $EMM = 4.34, SE = 0.097$ ) as significantly more vivid than vicarious memory reports ( $EMM = 3.24, SE = 0.121$ ). There were no simple main effects of memory valence. These results suggest that personal memory reports are more vivid than vicarious memory reports regardless of memory valence.

*Simple main effects.* The simple main effects of memory type and memory valence on the dependent variables were explored. When personal memories were first, there was a significant simple main effect of memory type for likelihood of telling future children,  $F(1, 71) = 42.33, p < .001, \text{partial } \eta^2 = .37$ , vividness,  $F(1, 71) = 59.84, p < .001, \text{partial } \eta^2 = .46$ , “*My memory of the event has become a part of my identity*”,  $F(1, 71) = 117.49, p < .001, \text{partial } \eta^2 = .62$ , “*My memory of the event has become a reference point for the way I understand myself and the world*”,  $F(1, 71) = 52.38, p < .001, \text{partial } \eta^2 = .43$ , “*My memory of the event has become central to my life story*”,  $F(1, 71) = 91.62, p < .001, \text{partial } \eta^2 = .56$ , “*My memory of the event colours the way I think and feel about other experiences*”,  $F(1, 71) = 11.57, p = .001, \text{partial } \eta^2 = .14$ . Furthermore, when

personal memories were first, there was also a significant simple main effect of memory valence for likelihood of telling future children,  $F(1, 71) = 13.28, p = .001$ , partial  $\eta^2 = .16$  and “*My memory of the event has become a reference point for the way I understand myself and the world*”,  $F(1, 71) = 12.82, p = .001$ , partial  $\eta^2 = .15$ . Participants reported that they were more likely to tell their future children about positive ( $EMM = 4.81$ ), rather than negative memories ( $EMM = 3.99$ ). In contrast, for the item: “*My memory of the event has become a reference point for the way I understand myself and the world,*” participants rated negative memory reports ( $EMM = 2.78$ ) higher than positive memory reports ( $EMM = 2.38$ ). See Table 12 for estimated marginal means ( $EMMs$ ) of the simple main effects.

When vicarious memories were first, there was a significant simple main effect of memory type on biographical significance,  $F(1, 69) = 71.39, p < .001$ , partial  $\eta^2 = .51$ , likelihood of telling future children,  $F(1, 69) = 21.53, p < .001$ , partial  $\eta^2 = .24$ , “*My memory of the event has become a part of my identity*”,  $F(1, 69) = 132.08, p < .001$ , partial  $\eta^2 = .66$ , “*My memory of the event has become a reference point for the way I understand myself and the world*”,  $F(1, 69) = 34.28, p < .001$ , partial  $\eta^2 = .33$ , “*My memory of the event has become central to my life story*”,  $F(1, 69) = 99.10, p < .001$ , partial  $\eta^2 = .59$ , “*My memory of the event colours the way I think and feel about other experiences*”,  $F(1, 69) = 17.50, p = .001$ , partial  $\eta^2 = .20$ . For each item, personal memories were rated significantly higher than vicarious memories. When vicarious memories were first, there was also a significant simple main effect of memory valence for likelihood of telling future children,  $F(1, 69) = 20.46, p < .001$ , partial  $\eta^2 = .23$ , in

which participants were more likely to tell future children about positive events rather than negative events.

Regardless of memory order, participants rated the following variables higher for personal memory reports than vicarious memory reports: likelihood of telling future children, biographical significance, vividness, “*My memory of the event has become a part of my identity*”, “*My memory of the event has become a reference point for the way I understand myself and the world*”, “*My memory of the event has become central to my life story*”, “*My memory of the event colours the way I think and feel about other experiences*”. In terms of memory valence, participants rated the likelihood of telling future children higher for positive memory reports in comparison to negative memory reports regardless of memory order. Furthermore, when personal memories were first, participants rated “*Memory has become a reference point for the way I understand myself and the world*” higher for negative events than positive events; this relationship was not significant when vicarious memories were first. In addition, the results demonstrated that positive personal memory reports were more personally important than negative personal memory reports, while significance ratings of positive and negative vicarious memory reports did not differ.

***Two-way interactions and simple main effects.*** There was a statistically significant two-way interaction between memory type and memory valence for “*My memory of the event influences my relationships with others*”,  $F(1, 140) = 4.85, p = .03$ , partial  $\eta^2 = .03$ . There was a statistically significant simple main effect of memory type for “*My memory of the event influences my relationships with others*” within negative memory reports,  $F(1, 141) = 26.02, p < .001$ , partial  $\eta^2 = .16$ . When examining the

estimated marginal means, “*My memory of the event influences my relationships with others*” was rated significantly higher for negative personal memory reports ( $EMM = 3.44, SE = 0.12$ ) in comparison to vicarious memory reports ( $EMM = 2.74, SE = 0.11$ ). There was no statistically significant simple main effect of memory type for “*My memory of the event influences my relationships with others*” within positive memory reports,  $F(1, 141) = 3.47, p = .07$ , partial  $\eta^2 = .02$ . This means that negative memory reports, but not positive memory reports, “*My memory of the event influences my relationships with others*” was rated higher for personal memory reports in comparison to vicarious memory reports.

There was a significant main effect of memory type on positive emotional saturation,  $F(1, 140) = 8.88, p = .003$ , partial  $\eta^2 = .06$ , negative emotional saturation,  $F(1, 140) = 5.84, p = .017$ , partial  $\eta^2 = .04$ , “*My memory of the event helps me solve problems in my life*”,  $F(1, 140) = 17.022, p < .001$ , partial  $\eta^2 = .11$ , and “*My memory of the event impacts my life decisions*”,  $F(1, 140) = 38.70, p < .001$ , partial  $\eta^2 = .22$ . Specifically, personal memory reports were also rated as significantly more positive (emotional saturation) ( $EMM = 3.05, SE = 0.03$ ) in comparison to vicarious memory reports ( $EMM = 2.92, SE = 0.03$ ), while vicarious memory reports were rated as significantly more negative ( $EMM = 2.92, SE = 0.04$ ) in comparison to personal memory reports ( $EMM = 2.79, SE = 0.04$ ). As well, “*My memory of the event helps me solve problems in my life*” and “*My memory of the event impacts my life decisions*” were rated significantly higher for personal memory reports ( $EMM = 2.61, SE = 0.09$ ; and  $EMM = 3.21, SE = 0.08$ , respectively) in comparison to vicarious memory reports ( $EMM = 2.21, SE = 0.08$ ; and  $EMM = 2.56, SE = 0.09$ , respectively). To summarize, these results indicate that personal

memory reports were rated higher than vicarious memory reports in terms of positive emotional saturation, “*My memory of the event helps me solve problems in my life*”, and “*My memory of the event impacts my life decisions*”, while vicarious memory reports were rated higher than personal memory reports in terms of negative emotional saturation.

There was a significant main effect of memory valence on positive emotional saturation  $F(1, 140) = 4648.19, p < .001$ , partial  $\eta^2 = .97$ , negative emotional saturation,  $F(1, 140) = 3361.74, p < .001$ , partial  $\eta^2 = .96$ , “*My memory of the event helps me solve problems in my life*”,  $F(1, 140) = 9.56, p = .002$ , partial  $\eta^2 = .06$ , and “*My memory of the event impacts my life decisions*”,  $F(1, 140) = 19.22, p < .001$ , partial  $\eta^2 = .12$ . Positive emotional saturation was rated significantly higher for positive memory reports ( $EMM = 4.75, SE = 0.03$ ) in comparison to memory reports ( $EMM = 1.22, SE = 0.03$ ). Negative emotional saturation was rated significantly higher for negative memory reports ( $EMM = 4.52, SE = 0.05$ ) in comparison to positive memory reports ( $EMM = 1.19, SE = 0.04$ ). “*My memory of the event helps me solve problems in my life*” and “*My memory of the event impacts my life decisions*” were rated significantly higher for negative memory reports ( $EMM = 2.56, SE = 0.08$ ; and  $EMM = 3.11, SE = 0.08$ , respectively) in comparison to positive memory reports ( $EMM = 2.27, SE = 0.08$ ; and  $EMM = 2.67, SE = 0.08$ , respectively). These results indicate that across personal and vicarious memory reports, negative memories were rated higher in terms of “*My memory of the event helps me solve problems in my life*”, “*My memory of the event impacts my life decisions*” and negative emotional saturation. Positive emotional saturation was higher for positive memories across both personal and vicarious memory reports.

There was a significant main effect of memory order on negative emotional saturation,  $F(1, 140) = 5.73, p = .018$ , partial  $\eta^2 = .04$  and “*My memory of the event impacts my life decisions*”,  $F(1, 140) = 7.21, p = .008$ , partial  $\eta^2 = .050$ . Negative emotional saturation was rated significantly higher when vicarious memory reports were first ( $EMM = 2.93, SE = 0.04$ ) in comparison to when personal memory reports were first ( $EMM = 2.78, SE = 0.04$ ). “*My memory of the event impacts my life decisions*” was rated significantly higher when vicarious memory reports were first ( $EMM = 3.06, SE = 0.09$ ), in comparison to when personal memory reports were first ( $EMM = 2.71, SE = 0.09$ ).

**Word counts: four-way 2 (gender)  $\times$  2 (memory type)  $\times$  2 (memory valence)  $\times$  (order) mixed anova.** A four-way 2 (gender)  $\times$  2 (memory type)  $\times$  2 (memory valence)  $\times$  (memory order) mixed methods ANOVA was run to understand the effects of gender, memory type, memory valence and memory order on the number of words provided by participants (total word counts). The distributions for word counts within each narrative were positively skewed (skewness ranged from 1.25 for positive vicarious narratives to 2.23 for negative personal narratives). Word counts for each of the four memory reports were transformed into  $z$ -scores and sorted by highest  $z$ -score to lowest  $z$ -score. When there was a gap of 0.5 standard deviations or more, participants with the higher scores were removed. There were 19 outliers excluded from the word count analysis (15 women, four men). Box’s Test of Equality of Covariance Matrices had a value of 50.63,  $F(1.56, 30) = 13898.59, p = .026$ , indicating unequal covariance matrices; however, upon closer examination of the covariance it was found that the groups with larger  $n$ ’s also had larger covariance, suggesting a conservative test despite the violation of Box’s Test of Equality of Covariance Matrices. For the results of the ANOVA analysis see Table 13.

*ANOVA interactions.* There was not a significant four-way interaction between memory type, memory valence, memory order and gender,  $F(1, 119) = 0.11, p = .740$ . There was, however, a statistically significant three-way interaction between memory type, memory valence and memory order,  $F(1, 119) = 5.31, p = .023$ , partial  $\eta^2 = .04$ . There was no statistically significant three-way interaction between memory type, memory valence and gender,  $F(1, 119) = 1.31, p = .25$ , although, there was a two-way interaction between memory valence and gender,  $F(1, 119) = 4.55, p = .035$ , partial  $\eta^2 = .04$ . Statistical significance of simple-two way interactions, simple main effects and simple simple main effects were accepted at a reduced alpha level of .01 to reduce the likelihood of familywise error.

*Simple two-way interactions.* There were no statistically significant simple two-way interactions between memory type and memory valence when personal memories were first,  $F(1, 63) = 3.05, p = .086$  or when vicarious memories were first,  $F(1, 56) = 2.29, p = .136$ .

*Simple main effects.* There was a statistically significant simple main effect of memory type when vicarious memories were first,  $F(1, 56) = 31.79, p < .001$ , partial  $\eta^2 = .36$ , but not when personal memories were first,  $F(1,64) = 2.035, p = .159$ . When vicarious memories were first, vicarious memory reports ( $EMM = 286.11, SE = 20.48$ ) had significantly fewer word counts than personal memory reports ( $EMM = 428.98, SE = 34.86$ ). When personal memories were first, there was no significant difference in word counts between personal memory reports ( $EMM = 361.09, SE = 26.83$ ) and vicarious memory reports ( $EMM = 329.08, SE = 23.09$ ). Overall, these results indicate that when vicarious memories were described before personal memories, participants generated



significantly larger word counts for personal memory reports than vicarious memory reports. When personal memories were described before vicarious memories, the word counts did not significantly differ between the personal and vicarious memory reports.

There was no statistically significant simple main effect of memory valence when personal memories were asked first,  $F(1, 63) = 0.22, p = .643$  or when vicarious memories were asked first,  $F(1, 56) = 0.028, p = .602$ .

To follow-up the significant two-way interaction between memory valence and gender, simple main effects were explored by examining the effect of memory valence on word counts produced by men and women separately. There was no statistically significant simple main effect of memory valence for men,  $F(1, 35) = 2.32, p = .137$ , or women,  $F(1,84) = 0.07, p = .067$ . The two-way interaction was likely significant because the difference in word counts between men and women was not the same for positive and negative memory reports. Men and women produced similar word counts for positive memory reports (men  $EMM = 348.95, SE = 26.65$ ; women  $EMM = 353.06, SE = 19.22$ ). For negative memories, women produced more words ( $EMM = 385.50, SE = 23.76$ ) than they did for positive memory reports, while men produced fewer words ( $EMM = 317.76, SE = 25.12$ ) than they did for the positive memory reports, see Figure 9.

Through a series of ANOVAs, it was discovered that young adults rated personal memory reports significantly higher than vicarious memories across several memory qualities, including biographical significance, vividness, likelihood of telling future children, *My memory of the event has become a part of my identity*,” “*My memory of the event has become a reference point for the way I understand myself and the world*,” “*My memory of the event has become central to my life story*,” “*My memory of the event*

*colours the way I think and feel about other experiences,*” positive emotional saturation, “*My memory of the event helps me solve problems in my life*”, and “*My memory of the event impacts my life decisions.*” In contrast, vicarious memory reports were rated higher than personal memory reports in terms of negative emotional saturation. Despite this pattern of significance, it is noteworthy that participants’ ratings of vicarious memory reports generally followed the same pattern as personal memory reports ratings, though vicarious memories were rated lower than personal memories. Specific patterns were noted when examining memory valence, because across personal and vicarious memory reports, negative memories were rated higher than positive memories in terms of “*My memory of the event helps me solve problems in my life*”, “*My memory of the event impacts my life decisions*” and negative emotional saturation. Similarly, positive emotional saturation and likelihood of telling future children were higher for positive memories than negative memories across both personal and vicarious memory reports. Memory valence was especially relevant for “*My memory of the event influences my relationships with others,*” because for negative, but not positive, memory reports, “*My memory of the event influences my relationships with others*” was rated higher for personal memory reports in comparison to vicarious memory reports. In terms of narrative length, the results indicate that when vicarious memories were described before personal memories, participants generated significantly larger word counts for personal memory reports than vicarious memory reports. When personal memories were described before vicarious memories, the word counts did not significantly differ between the personal and vicarious memory reports. Men and women produced similar word counts for positive memory reports, but for negative memory reports, women produced more

words than they did for positive memory reports, while men produced fewer words than they did for the positive memory reports. The same pattern of elaboration was present in both personal and vicarious memory reports.

**Research Question #2: How do Self-Event Connections Compare in Vicarious and Personal Memory Reports, in Terms Type and Frequency?**

Research question #2 aimed to compare the frequency of positive and negative self-event connections within vicarious memories (positive and negative) and personal memories (positive and negative). This research question was addressed by conducting a  $2$  (gender)  $\times$   $2$  (memory valence)  $\times$   $2$  (memory type)  $\times$   $2$  (self-event connection valence) ANOVA, in which the frequency of self-event connections was the dependent variable.

**Preliminary analyses.** When examining the distribution of the self-event connections, they were positively skewed. The number of negative self-event connections within negative vicarious narratives had a skewness of 2.77 ( $SE = 0.20$ ). The number of positive self-event connections within negative vicarious narratives had a skewness of 1.25 ( $SE = 0.20$ ). The number of negative self-event connections within positive vicarious memories had a skewness of 2.72 ( $SE = 0.20$ ). The number of positive self-event connections within positive vicarious memories had a skewness of .71 ( $SE = 0.20$ ). The number of negative self-event connections within negative personal memories had a skewness of 1.20 ( $SE = 0.20$ ). The number of positive self-event connections within negative personal memories had a skewness of 1.22 ( $SE = 0.20$ ). The number of negative self-event connections within positive personal memories had a skewness of 3.06 ( $SE = 0.20$ ). The number of positive self-event connections within positive personal memories had a skewness of 1.77 ( $SE = 0.20$ ). The majority of participants generated five or fewer

self-event connections. To reduce the influence of extreme scores, scores above five were recoded to equate five, so five was the maximum number of self-event connections produced by one participant for each memory. Within the negative vicarious narratives, 98.6% of participants made fewer than six negative self-event connections and 99.3% of participants made fewer than six positive self-event connections. Within positive vicarious narratives, 100% of participants made fewer than six self-event connections. Within negative personal narratives, 100% of participants made fewer than six negative self-event connections, and 98.6% of participants made fewer than six positive self-event connections. Within positive personal narratives, 100% of participants made fewer than six negative self-event connections, and 97.9% of participants made fewer than six positive self-event connections.

A 2 (order)  $\times$  2 (gender)  $\times$  2 (memory valence) 2 (memory type)  $\times$  2 (self-event connection valence) ANOVA was conducted as a preliminary analysis to identify whether memory order or gender were significant between-subject variables that were necessary to include within the main analysis. Memory order was not statistically significant as a main effect or as part of any interaction, thus memory order was not included in the main analysis. Gender was found to be significant within interactions and was included in the main analysis.

**Self event-connections: four-way 2 (gender)  $\times$  2 (memory valence) 2 (memory type)  $\times$  2 (self-event connection valence) ANOVA.** A 2 (gender)  $\times$  2 (memory valence) 2 (memory type)  $\times$  2 (self-event connection valence) ANOVA was conducted to examine the influence of gender, memory valence, memory type, and self-event connection valence on the frequency of self-event connections. The assumption of Equality of

Covariance Matrices was violated, as assessed by a Box's  $M$  value of 78.97,  $F(36, 21167.80) = 2.02, p < .001$ . However, closer examination of the covariance indicated that women had a larger covariance than men, which suggested that the test was conservative because there were more women than men in the sample. Word counts were not included as a covariate because generating self-event connections requires additional words; therefore, controlling for word counts controls for the variables of interest (Fivush, Bohanek, Zaman & Grapin, 2012).

There was no significant four-way interaction between memory type, memory valence, self-event connection valence and gender,  $F(1, 140) = 0.12, p = 0.730$ . There were, however, two statistically significant three-way interactions, which are described below. See Table 14 for the self-event connection ANOVA summary table.

***Three-way interaction: memory type × memory valence × self-event connection valence.*** There was a statistically significant three-way interaction between memory type, memory valence and self-event connection valence,  $F(1, 140) = 14.24, p < .001, \text{partial } \eta^2 = .09$ . Statistical significance of simple two-way interaction, simple main effects and simple simple main effects were accepted at a reduced alpha level of .01 to reduce the likelihood of familywise error.

*Simple two-way interaction.* There was a statistically significant simple two-way interaction between memory valence and memory type on the frequency of positive self-event connections,  $F(1, 140) = 9.73, p = .002, \text{partial } \eta^2 = .07$ , but not on the frequency of negative self-event connections  $F(1, 140) = 6.012, p = .015$ .

*Simple main effects.* Simple main effects were examined for negative self-event connections. There was a significant simple main effect of memory valence,  $F(1,140) =$

55.74,  $p < .001$ , partial  $\eta^2 = .29$ , in which negative narratives ( $EMM = 0.70$ ,  $SE = 0.08$ ) had significantly more negative self-event connections than positive narratives ( $EMM = 0.11$ ,  $SE = 0.02$ ). This means that negative self-event connections were more prevalent within negative narratives compared to positive narratives.

*Simple simple main effects.* Simple simple main effects were explored to follow-up the significant simple two-way interaction between memory valence and memory type on the frequency of positive self-event connections. There was a significant simple simple main effect of memory type within positive narratives,  $F(1,140) = 35.02$ ,  $p < .001$ , partial  $\eta^2 = .20$ , in which personal narratives ( $EMM = 1.93$ ,  $SE = 0.11$ ) had significantly more positive self-event connections than vicarious narratives ( $EMM = 1.24$ ,  $SE = 0.09$ ). For positive self-connections, there was no simple simple main effect of memory type within negative narratives,  $F(1,140) = 0.51$ ,  $p = .476$ . These results indicate that participants were more likely to produce positive self-event connections in positive personal memories compared to positive vicarious memories. Furthermore, there was no significant difference between the frequency of positive self-event connections within negative personal and vicarious memory reports.

***Three-way interaction: memory type  $\times$  self-event connection valence  $\times$  gender.***

There was a statistically significant three-way interaction between memory type, self-event connection valence and gender,  $F(1, 140) = 4.15$ ,  $p = .044$ , partial  $\eta^2 = .03$ .

Statistical significance of simple two-way interactions, simple main effects and simple simple main effects were accepted at a reduced alpha level of .01 to reduce the likelihood of familywise error.

*Simple two-way interaction.* There were no significant simple two-way interactions between memory type and self-event connection valence for men,  $F(1, 40) = 6.82, p = .013$ , or women,  $F(1, 100) = 0.03, p = .875$ .

*Simple main effects.* There was a statistically significant main effect of memory type on self-event connection frequency for men,  $F(1, 40) = 8.08, p = .009, \eta^2 = .17$  and for women,  $F(1, 100) = 17.08, p < .001, \eta^2 = .15$ . For men, personal narratives ( $EMM = 0.95, SE = 0.09$ ) had significantly more self-event connections than vicarious narratives ( $EMM = 0.70, SE = 0.09$ ). Similarly, for women, personal narratives ( $EMM = 1.13, SE = 0.07$ ) also had significantly more self-event connections than vicarious narratives ( $EMM = 0.85, SE = 0.06$ ).

There was a statistically significant simple main effect of self-event connection valence on self-event connection frequency for men,  $F(1, 40) = 52.51, p < .001, \eta^2 = .57$  and for women,  $F(1, 100) = 167.62, p < .001, \eta^2 = .63$ . For men, positive self-event connections ( $EMM = 1.31, SE = 0.13$ ) were significantly more frequent than negative self-event connections ( $EMM = 0.34, SE = 0.06$ ). This pattern was the same for women, as positive self-event connections ( $EMM = 1.51, SE = 0.08$ ) were significantly more frequent than negative self-event connections ( $EMM = 0.48, SE = 0.08$ ). Both men and women produced more positive than negative self-event connections.

Overall, meaning-making was explored by examining participants' production of positive and negative self-event connections across personal and vicarious memory reports. A mixed methods ANOVA and follow-up tests revealed, as expected, that all participants produced significantly more self-event connections within personal memory reports in comparison to vicarious memory reports. Furthermore, participants produced

significantly more positive self-event connections in comparison to negative self-event connections across all memory types. Consistent with hypotheses, negative self-event connections were more prevalent within negative narratives in comparison to positive narratives, while, participants used significantly more positive self-event connections in positive memories compared to negative memories. There was no significant difference between the frequency of positive self-event connections between negative personal memory report and negative vicarious reports. The results show that both men and women used self-event connections when describing personally experienced events, and when describing events that they did not directly experience.

**Research Question #3: What are the Relations Between Event Centrality, Psychological Distress and Self-Event Connection Valence? If Relations Exist Between These Variables, Does the Valence of Self-Event Connection Mediate the Relationship Between Memory Centrality and Psychological Distress? Do These Relations Differ Between Personal and Vicarious Memory Reports?**

Research question #3 aimed to determine the relations between self-reported psychological distress, event centrality and self-event connection valence. To address this aim, a series of correlation analyses were conducted separately for men and women. First, a correlation was conducted between psychological distress and each of the overall centrality ratings for the memories. The four items assessing memory centrality were summed to create an overall measure of centrality for each of the four memories. Next, the mean frequency of positive and negative self-event connections was correlated against psychopathology variables and memory centrality. Ratings for memory centrality for each memory were correlated against overall psychological distress. As described below, there



were no significant correlations between self-event connections and psychological distress, so a mediation analysis was not conducted.

Bivariate correlations were conducted separately for men and women to examine associations between memory centrality and frequency of self-event connections for each narrative. Memory centrality was included in the correlations as an overall measure of centrality per memory (the average of the four event centrality ratings). In addition to the overall centrality rating, self-event connections were correlated against the four individual memory centrality items, “*memory has become a part of my identity,*” “*memory has become a reference point for the way I understand myself and the world,*” “*memory has become central to my life story,*” and “*memory colours the way I think and feel about other experiences.*” Correlations for women and men are displayed in Table 15 and Table 16 respectively.

For women, there was a significant correlation between overall memory centrality and positive self-event connections within positive personal memories,  $r(101) = .34, p < .001$ . There was also a significant correlation between overall memory centrality and negative self-event connections within positive personal memories,  $r(101) = .28, p = .005$ . This pattern was consistent with the pattern for vicarious memory reports, in that there was a significant correlation between overall memory centrality and positive self-event connections within positive vicarious memory reports,  $r(101) = .36, p < .001$ . For vicarious memory reports there was also a significant correlation between overall memory centrality and negative self-event connections within positive vicarious memory reports,  $r(101) = .22, p = .029$ . These findings suggest a strong association between

memory centrality and self-event connections for women within the context of positive personal and positive vicarious memory reports.

For men, there was a significant correlation between overall centrality and the frequency of positive self-event connections within negative personal memory reports,  $r(41) = .45, p = .003$ . This pattern was also observed for vicarious memory reports, as there was a significant correlation between overall memory centrality and positive self-event connections within positive vicarious memories,  $r(41) = .48, p = .002$ . Finally, there was a significant correlation between overall memory centrality and positive self-event connections within negative vicarious memory reports,  $r(41) = .33, p = .034$ . This relation was not observed for negative personal memory reports. These findings suggest a strong association between memory centrality and positive self-event connections for men within the context of negative personal memory reports, negative vicarious memory reports and positive vicarious memory reports.

A second series of correlations was conducted separately for men and women to examine associations between memory centrality within each memory report and the ratings for the overall DASS-21 score. The average of the four memory centrality questions was used as a measure of overall memory centrality for each memory and this score was correlated against the overall psychological distress score (total DASS-21 score). Centrality of negative vicarious memory reports was the only measure of centrality that significantly correlated with the DASS-21 score. This relationship was significant for men,  $r(41) = .34, p = .033$ , and women,  $r(101) = .23, p = .021$  (see Table 17). These results indicate that endorsing negative vicarious memories as central to one's identity is associated with more psychological distress for both men and women.

A final series of bivariate correlations were run separately for men and women to examine associations between self-event connections within each memory report and the ratings for the subscales of the DASS-21 (depression, anxiety and stress) and the overall DASS-21 score (psychological distress). There were no significant relationships ( $\alpha = .05$ ) between self-event connections and either measure of psychopathology. Correlations are presented for women in Table 18 and men in Table 19. A mediation analysis was not conducted because there were no statistically significant relationships between positive or negative self-event connections and psychopathology.

**Research Question #4: Are Positive or Negative Self-Event Connections Associated with Identity? Is the Relationship the Same for Personal and Vicarious Memory Reports?**

Research question #4 aimed to determine if the frequency of positive or negative self-event connections was associated with identity distress or identity development (identity commitment or identity exploration). To answer this question, a series of bivariate correlations were conducted.

Bivariate correlations were run separately for men and women to examine associations between positive and negative self-event connections and identity variables (IDS, EIPQ) for each memory. For women, there were no significant correlations between identity variables and frequency of self-event connections within either memory, see Table 20. For men, there were two significant correlations between identity variables and frequency of self-event connections. The frequency of negative self-event connections, within positive vicarious memory reports, was moderately negatively correlated with identity commitment,  $r(41) = -.34, p = .028$ . Although statistically

significant, this finding must be interpreted with caution given the low prevalence of negative self-event connections within positive vicarious memory reports (men negative self-event connection  $M = 0.17$ ,  $SD = 0.38$ ). There was also a significant moderate negative correlation between identity distress and the frequency of positive self-event connections within positive personal memory reports,  $r(41) = -.31$ ,  $p = .046$ , see Table 21. This finding suggests that men who make more positive self-event connections when discussing positive personal events, are likely to have less identity distress than men who make fewer positive self-event connections.

### **Discussion**

The purpose of this study was to contribute new information to the memory literature regarding vicarious memory. Previous studies of vicarious memory have predominantly focused on vicarious trauma (Cohen & Collens, 2013; Pillemer et al., 2015) or intergenerational narratives (Fivush & Zaman, 2013; Merrill & Fivush, 2016; Merrill et al., 2017; Pratt et al., 2008; Reese et al., 2017; Zaman & Fivush, 2011). Few studies have specifically examined vicarious memories beyond vicarious trauma or intergenerational narratives (Lind & Thomsen, 2018; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Thomsen & Pillemer, 2017). The current study expanded upon Pillemer et al. (2015) and Merrill et al. (2016) and provides a unique contribution to the literature through an examination of highly emotional vicarious memory reports (positive and negative) in contrast to highly emotional personal memory reports. Vicarious and personal memory reports were elicited from university students via one-on-one in-person interviews. Participants completed various follow-up questions for each memory report, and also completed questionnaires regarding identity development, identity distress and

psychological distress. Vicarious memory reports and personal memory reports from young adults were compared and contrasted in terms of various memory qualities, memory functions, and meaning-making.

As expected, the overwhelming majority of participants were able to generate both vicarious and personal memory reports. Consistent with recent literature, this finding suggests that highly emotional vicarious memories are easily accessible among young adults (Lind & Thomsen, 2018; Merrill et al., 2017; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Thomsen & Pillemer, 2017). Through a MANOVA, the results indicate that vicarious memories parallel personal memories across many domains, including memory qualities, memory functions, event centrality and meaning-making. Personal memory reports were generally rated significantly higher across all variables. That is, in comparison to vicarious memory reports, participants rated personal memories as more important, functional, central to identity, vivid and positive. Despite this pattern, the participants' endorsement of these memory variables for vicarious memory reports suggests that vicarious memory is important. A striking result of the current study was the social function of vicarious memory reports. For negative events, participants rated personal memory reports as serving a significantly greater social function than vicarious memory reports; however, for positive memories there was no significant difference between the participants' ratings of social function for vicarious and personal memory reports. These results indicate that vicarious memory serves many of the same functions as personal memory, with a particularly prominent impact on social relationships. The participants' endorsement of these memory variables for vicarious memory reports

underlies the need for vicarious memory to be considered within models of explicit memory.

The second aim of this study was to examine and compare meaning-making between personal and vicarious memory reports. Through an ANOVA, it was identified that participants used more self-event connections within personal memory reports in comparison to vicarious memory reports. Nevertheless, an important conclusion of this study is that the process of making meaning from past events is not unique to events directly experienced. Many researchers have found that making meaning out of personally experienced events is related to identity development and psychological wellbeing (Banks & Salmon, 2013; McLean & Fournier, 2008; Merrill et al., 2016). The findings from the current study indicate that young adults make connections between events experienced by others and enduring aspects of themselves. Although significantly less frequent than self-event connections within personal memories, self-event connections within vicarious memories were prevalent and followed the same pattern as personal memories. This highlights that the tendency to create meaning from events is not specific to personally experienced events. These findings strongly support the importance of vicarious memories.

### **Memory Qualities**

It was hypothesized that participants' ratings of memory qualities for vicarious narratives would follow the same pattern as personal narratives; yet, it was expected that all memory variables (except negative emotional saturation) would be rated significantly higher for personal memory reports in comparison to vicarious memory reports. It was also expected that participants would be more elaborate when describing personal

memory in comparison to vicarious memory reports, as measured by word counts.

Participants rated memory qualities including: vividness, positive saturation, negative saturation, biographical significance and the likelihood of telling (future) children. All hypotheses were confirmed, and no gender differences were observed among the sample. Participants rated significantly higher degrees of negative emotion in vicarious memories compared to personal memories, while they endorsed higher degrees of positive emotion within personal memories compared to vicarious memories. This pattern was observed for both positive and negative memory types. This finding was consistent with the hypothesis and the literature and suggests that vicarious memory may serve a self-enhancement function through social comparison (Taylor & Lobel, 1989; Thomsen & Pillemer, 2017). When thinking about the negative experiences of others, people may feel better about their own experiences or abilities. That is, perceiving the life events of others as more negative than personal life events may enhance the development of self-concept.

Consistent with hypotheses, personal memories were rated higher than vicarious memories for vividness. This pattern was significant across positive and negative memory reports. Nevertheless, participants did endorse vicarious memory reports as vivid, although to a lesser degree than personal memory reports. Vividness was endorsed for both positive vicarious memory reports ( $M = 3.11$  out of five) and negative vicarious memory reports ( $M = 3.12$  out of five). In contrast, positive personal memory reports ( $M = 4.21$ ) and negative personal memory reports ( $M = 4.16$ ) were rated as more vivid. The finding that young adults have relatively vivid vicarious memories was consistent with Pillemer et al. (2015) and highlights the relevance of vicarious memories to the memory literature.

It was hypothesized that personal memories would be rated as significantly more personally important than vicarious memories, across both positive and negative memory types. This hypothesis was supported by the results. Two items assessed personal significance. For one item, participants were asked how likely they would be to tell their (future) children about the event. The second item asked participants to rate how likely they would be to include a description of the event in a private or public biography of their life. For both items reflecting event significance, personal memories were rated higher than vicarious memories; however, one must recognize that participants did endorse vicarious memory reports as personally important, though to a lesser degree than personal memory reports. With regards to the likelihood of telling (future) children, participants rated vicarious memories in a pattern consistent with the significance of personal memory reports, in that for both personal and vicarious memory reports, positive memories were rated significantly higher than negative memories. This pattern did not exist when participants rated the biographical significance of memories, which suggests that this specific item may capture different elements of personal significance of the memory or may reflect beliefs regarding what is appropriate to share with one's children. Despite the significant difference between the importance of vicarious and personal memories, participants did rate vicarious memory reports as biographically significant (positive vicarious memory reports  $M = 3.76$  out of seven; negative vicarious memory reports  $M = 3.84$  out of seven); albeit significantly less than personal memory reports (positive personal memory reports  $M = 5.88$  out of seven; negative personal memory reports  $M = 5.30$  out of seven). The endorsement of vicarious events as personally



significant, although to a lesser degree than personal memories, indicates that memories of vicarious events are personally meaningful to young adults.

It was hypothesized that participants would be more elaborative when discussing personal memory reports in comparison to vicarious memory reports, as measured by word counts. This hypothesis was partially supported; however, the relation between word counts and memory type was impacted by the order in which the memories were described. When vicarious memories were described before personal memories, participants generated significantly higher word counts for personal memory reports than vicarious memory reports. When personal memories were described before vicarious memories, the word counts did not significantly differ between the personal and vicarious memory reports. When personal memories were described first ( $M = 361.09$ ), participants were less elaborative than when they described personal memories second ( $M = 428.98$ ). Similarly, for vicarious memories, participants provided slightly longer narratives when they described vicarious memories second ( $M = 329.08$ ) compared to vicarious memories first ( $M = 286.11$ ). This pattern was likely the result of increased rapport as the interview progressed and participants experienced an increase in comfort about sharing memory details. Upon closer examination of the word counts, the pattern of elaboration was similar between personal and vicarious memories. For both personal and vicarious memories, women produced more words for negative memories than they did for positive memories, while men produced fewer words for negative memories than they did for the positive memories. The similar pattern of elaboration between personal and vicarious memory reports for both men and women further suggests that vicarious memory parallels personal memory.

In comparison to vicarious memory reports, personal memory reports were significantly more vivid, more personally important, more elaborative, less negative and more positive. However, the results of the current study highlight that vicarious memory reports are rated as vivid, personally important and emotional. Young adults rated vicarious memories in a way that followed a similar pattern to ratings of personal memories. These results add to a growing body of literature which suggests that vicarious memories are important, and they should be included in models of episodic memory (Panattoni & Thomsen, 2018; Pillemer et al., 2015; Rubin & Umanath, 2015; Thomsen & Pillemer, 2017).

### **Memory Functions**

It was hypothesized that personal memory reports would be rated as more functional than vicarious memory reports, in terms of guidance of future behaviours and social function. Three items that represented memory functions were directly compared between personal and vicarious memory reports: “*My memory of the event helps me solve problems in my life,*” “*My memory of the event impacts my life decisions,*” and “*My memory of the event influences my relationship with others.*” Consistent with hypotheses, personal memory reports were rated as significantly more functional than vicarious memories in terms of problem-solving and decision-making. This relationship existed for both positive and negative memory reports. These findings were partially consistent with the findings from Pillemer et al. (2015), who found that participants rated personal memories as significantly more important than vicarious memories in terms the impact on problem-solving. However, they did not find a significant difference between vicarious and personal memory reports for the function of impacting life decisions. The

discrepancy between the current study and Pillemer et al. (2015) suggests that highly emotional personal memory reports have a significantly greater impact on life decisions than vicarious memories, while personal and vicarious memories that are not highly emotional may not differ in the degree that they impact one's life decisions.

Positive and negative memory reports were also compared to gain a better understanding of the role of valence for memory function. Across personal and vicarious memory reports, negative memories were rated higher in terms of their influence on personal decision-making and problem-solving. Despite the significant differences between vicarious memory reports and personal memory reports, the ratings for each type of memory followed a similar pattern, which was consistent with the findings from Pillemer et al. (2015). The results suggest that although to a lesser degree than personal memory reports, vicarious memory reports do impact personal problem-solving and decision-making.

The social function of personal and vicarious memory reports was more complex than the other memory functions. The social function of memory reports was assessed by one item, "*My memory of the event influences my relationship with others.*" For this item, there was an interaction between memory type and valence, in which the social function was rated higher for personal memories than vicarious memories for negative memory reports, but there was no significant difference between vicarious and personal memories for positive memory reports. This finding suggests that positive vicarious memory reports may be especially important for serving a social function, given the similar ratings between positive vicarious memory reports and positive personal memory reports. When examining the social function of negative memories, the results demonstrated a

significant difference between personal and vicarious memory reports favoring personal memory reports; nevertheless, negative vicarious memory reports were rated as serving a social function. In the Pillemer et al. (2015) study, they did not differentiate between positive and negative memory reports, but they found that personal memory reports were significantly more important than vicarious memory reports for influencing relationships. The difference between the current study and Pillemer et al. (2015) suggests that emotional intensity of vicarious events plays a role in the social function of vicarious memory reports.

Four additional items did not allow for direct comparison between personal and vicarious memories. For personal memory reports, participants rated the extent that the memory makes them feel better about themselves (which reflected self-esteem), and the extent that the memory helps them better understand themselves (which reflected self-concept). With regards to the personal memory reports, participants highly endorsed both positive and negative memory reports as important for helping them understand themselves, which suggests an important function of personal memory reports for self-concept. Interestingly, positive personal memories were more relevant than negative personal memories in improving self-esteem. Consistent with the literature, these results provide support for the self-definition function of personal memory. Personal memory serves this function because it allows individuals to develop a stable identity, by linking past experiences into a life story (Bluck & Alea, 2008; Bluck et al., 2005; Conway, 2005; Habermas & Bluck, 2000; Waters et al., 2014).

For vicarious memories, participants rated the extent to which the memory makes them feel close to the vicarious protagonist, and the extent to which the memory helps

them better understand the vicarious memory protagonist (both items reflected a social function). Across positive and negative vicarious memories, participants identified vicarious memories as helpful for increasing their understanding of the vicarious memory protagonist. Participants also endorsed both types of vicarious memory reports as helpful for increasing their feelings of closeness towards the vicarious memory protagonist. Consistent with Pillemer et al. (2015) the results suggest that an important function of vicarious memory is enhancing intimacy. The current study extended the findings from Pillemer et al. (2015) by illustrating that positive and negative vicarious memories are comparable in the social functions that they serve. It is widely accepted that personal memory serves the function of social connectedness because it allows people to develop and nurture social relationships by reminiscing about shared experiences (Alea & Bluck, 2007; Bluck et al., 2005; Waters et al., 2014). The results of the current study suggest that this function is also served by vicarious memory. Vicarious memory serves the function of fostering intimacy because it increases understanding of the vicarious protagonist and because learning about the emotional experiences of others can increase feelings of closeness to others (Laurenceau, Feldman Barrett & Pietromonaco, 1998; Reis & Shaver, 1988).

Social impairment is a common symptom among many psychiatric disorders, and social skills training is an evidence-based therapeutic intervention that aims to improve social functioning (Shapiro, 2015; Spence, 2003). Social skills training is often incorporated in larger treatment plans for various psychiatric conditions (Shapiro, 2015; Spence, 2003) such as autism spectrum disorder (Wong et al., 2014), schizophrenia (Kopelowicz, Liberman & Zarate, 2006), anxiety (Beidel et al., 2014) and depression

(Kaslow & Thomsen, 1989; Shapiro, 2015). The results of the current study indicate that young adults better understand close others by learning about negative life experiences that the other person went through. Perhaps it may be advantageous for social skills training interventions to help clients better understand others by learning about negative life experiences that others have encountered.

Waters et al. (2014) determined that different types of memories (specific, repeated and extended) serve various functions, although they may differ in the extent that they serve each function. They argued that memories of specific and extended events are more important in guiding future behaviours and serving a self-defining function than memories of repeated events, while memories of extended and repeated events are more relevant for serving a social function than memories of specific events (Waters et al., 2014). Perhaps, just as Waters et al. (2014) demonstrated the varying degrees of functionality for specific, repeated and extended events, vicarious memory reports and personal memory reports serve important functions to different degrees. Vicarious memory may be especially relevant for enhancing intimacy, while personal memory is more useful for self-definition and guiding behaviours.

The results suggest that remembering events that one did not directly experience can serve various functions within one's life. Vicarious memories may play an especially critical role in social relationships. As discussed by Thomsen and Pillemer (2017), knowledge of other people's lives can facilitate positive social interactions. Knowledge of the experiences of others may also facilitate one's understanding of the emotional reactions of others (Thomsen & Pillemer, 2017). For example, knowledge of another person's life may allow one to tailor conversations in a sensitive way to promote positive

interactions (e.g. knowledge that one's significant other is a survivor of sexual abuse may help one sensitively navigate conversations or actions about sex). In the current study, the social function of vicarious memory was most prevalent within positive memories. Social relationships may improve when one shares a positive experience, particularly when the other person can relate to that experience. If one hears about a positive vicarious event from their friend, and they too had a similar experience, they may feel that they can better understand or relate to the friend.

### **Memory Centrality**

When an event is central to one's identity, the memory of that event reflects the way the individual views themselves, the world, or others (Berntsen, 2006). Consistent with hypotheses, participants endorsed personal memory reports as more central to their identity than vicarious memory reports. Centrality was assessed by four items, (*"My memory of the event has become a part of my identity," "My memory of the event has become a reference point for the way I understand myself and the world," "My memory of the event has become central to my life story" and "My memory of the event colours the way I think and feel about other experiences"*). Personal memory reports were rated as significantly more central than vicarious memory reports for both positive and negative events. Regardless, it is noteworthy that participants did endorse vicarious memory reports as central to their identity, although less central than personal memory reports. Endorsement of centrality was especially notable for the item, *"My memory of the event colours the way I think and feel about other experiences,"* which participants rated as moderately central for positive vicarious memory reports ( $M = 2.66$  out of five) and negative vicarious memory reports ( $M = 2.89$  out of five). A second centrality item that

was moderately endorsed for vicarious memories was “*My memory of the event has become a reference point for the way I understand myself and the world*” (negative vicarious memory reports  $M = 2.44$ ; positive vicarious memory report  $M = 2.20$  out of five). These items addressed whether the event had become a reference point for the generation of future expectations, and the attribution of meaning to other life experiences (Berntsen, 2006). Participants’ endorsement of these items suggests that vicarious memory serves the role of expanding people’s perspective. When a memory of an event serves as a reference point in this way, it may validate current beliefs and feelings, and guide thoughts and behaviours (Pillemer, 1998). The endorsements of memory centrality within the current study were consistent with the results of Pillemer et al. (2015) and indicate that memories of events that one has not directly experienced can impact one’s attitudes and beliefs within their own life.

### **Self-Event Connections**

It was hypothesized that participants would make more meaning, as measured by self-event connections, within personal memory reports in comparison to vicarious memory reports. Given the low frequency of self-event connections within each self-event connection category, they were combined and analyzed in terms of valence, but not self-event connection category. The prevalence of self-event connections was consistent with Merrill et al. (2016) and Salmon and Banks (2013), who also observed low frequencies of self-event connections in positive and negative personal memories. Furthermore, there were low frequencies of neutral and mixed emotional valence self-event connections. Therefore, only positive and negative self-event connections were examined in statistical analyses. Merrill et al. (2016) also exclusively focused on positive



and negative self-event connections, while Salmon and Banks (2013) examined positive, negative, neutral and mixed self-event connections, but found no significant relationships among neutral or mixed self-event connections and psychological distress, which suggests that there is little relevance of neutral and mixed self-event connections.

It was hypothesized that participants would produce more self-event connections within personal memory reports compared to vicarious memory reports. This hypothesis was partially supported. Within the context of positive memories, participants used more positive self-event connections within personal narratives compared to vicarious narratives. This finding was consistent with the hypothesis; however, inconsistent with the initial hypothesis, it was determined that the mean frequency of positive self-event connections within negative memory reports did not differ between personal memory reports and vicarious memory reports. These findings suggest that within negative memory reports, positive self-event connections are used equally as often within personal and vicarious memories. These results showed that when describing the negative experiences of others, the participants made connections to positive aspects of themselves. Within the context of personal memory reports, the use of positive meaning-making when describing negative events reflects a redemptive narrative, which is a story that starts negative, but one makes positive meaning out of it (McAdams, 2006). The pattern of positive self-event connections within negative vicarious memories may not have reflected a redemptive narrative because the participants were not describing positive aspects associated with a personally experienced hardship. Rather, the use of positive meaning-making within negative vicarious memory reports may have further reflected the self-enhancement function of vicarious memories. Perhaps in considering

the negative experiences of others, participants were able to more easily identify positive personal attributes by comparison.

An important finding of the current study was that young adults created personally relevant meaning from events that they heard second hand. For example, one participant in the current sample described a negative vicarious memory in which a friend experienced a sexual assault. In describing her friend's experience, the participant produced a positive self-event connection:

*"I guess it's made me a bit more... just like more empathetic towards like people that have like dealt with like rape and sexual assault just cause like someone really close to me has went through it."*

In this example, the participant connected the event that her friend experienced to her personal outlook on the prevalence of sexual assault, and the way in which she empathized with survivors of sexual violence. In describing a negative vicarious memory, the participant made positive meaning from the event, which continued to influence her current self at the time of the interview.

Similarly, participants made negative meaning out of events that they heard secondhand. For example,

*"Okay, well. The reason my dad quit playing hockey. He... he got hit in the head, and he started crying and my pop went out there and just kinda looked at him. And told him hockey players are supposed to be tough. And just left him there. And yeah that was. It just feels-the way he described it made it feel like I was actually there. 'Cause I can see him doing that. [...] Well I look at my grandfather differently. After that. Before I always thought of him as a really nice guy and then I guess well I mean I realized like most people. He's not always the way you think they are when you're young. [...] Probably don't trust people as much, probably don't really like being around people as much. Because I know they can be like that. Not only from that but also my own experiences."*

In this excerpt, the participant described an event that his father experienced during adolescence. The participant connected his father's experience to his own perspective of his grandfather and his outlook on the trustworthiness of people.

Participants' use of self-event connections in positive and negative narratives followed the same pattern across personal and vicarious memory reports. For both vicarious and personal memory types, participants most frequently produced positive self-event connections for positive memories, followed by positive self-event connections for negative memories, followed by negative self-event connections for negative memories. For both personal and vicarious memories, negative self-event connections were rarely generated within positive memory reports. This pattern was consistent with the results found by Merrill and Fivush (2016) and Banks and Salmon (2013) who examined self-event connections within personal memories. The finding that young adults use of self-event connections when describing vicarious memories highlights that people connect enduring aspects of themselves to the experiences of family members and friends. Furthermore, not only do young adults make self-event connections within vicarious memory reports, but the way in which they make meaning from vicarious memory reports follows the same pattern as the way that they make meaning from personally experienced events. This pattern further indicates the parallels between vicarious and personal memory reports and the finding that young adults make meaning out of events that they have not directly experienced.

Consistent with the current study, other studies have found that young adults make connections between their current selves and events experienced by others. The few studies that have examined autobiographical reasoning within vicarious memories have

predominantly focused on intergenerational memories, which are stories about events that parents, or grandparents, experienced during their childhood (Merrill et al., 2016; Reese et al., 2017). Researchers have concluded that family stories and intergenerational stories often serve the purpose of transmission of family values, family history and family identity; thus they may help the listener develop narrative identity within the context of their family (Fivush et al., 2008; Fivush et al., 2011; Merrill & Fivush, 2016; Merrill et al., 2017).

Merrill et al. (2017) elicited written narratives of personal and intergenerational memory reports that centered on themes of pride and transgressions. Within the narratives, the researchers examined the number of evaluations made by the participant, the vicarious protagonist or other people from the story. They discovered that there was a significant difference in the number of evaluations depending on the protagonist of the story. In particular, when describing intergenerational stories in which the father was the protagonist, participants used significantly fewer evaluations than when describing intergenerational stories when their mother was the protagonist. Surprisingly, there was no difference in the number of evaluations between the intergenerational stories about mothers and narratives of personal events. They did, however, find that participants' use of evaluations was the same in both positive events and negative events. Their criteria for evaluation fell within the domain of a self-event connection as defined within the current study; however, unlike the current study, Merrill et al. (2017) did not sub-code for valence of the self-event connections. Furthermore, within the current study self-event connections were differentiated depending on who made the connections. In the current

study, only statements in which the participants connected an event to their current self were included in analyses.

Reese et al. (2017) examined self-event connections within intergenerational narratives across three cultural groups. They examined participants' use of intergenerational identity connections, which they defined as the link between an event from the participants' parents' childhood and the participants' identity. These researchers elicited oral narratives via an in-person interview. Although their definition of identity connections was generally consistent with the terminology in the current study, they did not sub-code self-event connections based on valence; rather they looked at the total number of connections per narrative. They found that adolescents from interdependently oriented cultures produce a higher frequency of self-event connections than independently-oriented cultures. These findings indicated that adolescents produce self-event connections when they describe events that they have not directly experienced. They also emphasized that the importance of intergenerational narratives for identity development may differ between cultures. Reese et al. (2017) highlighted the need to acknowledge family narratives in addition to personal narratives when studying narrative identity. The current study expanded on this conclusion by suggesting that vicarious memory reports, beyond intergenerational narratives, should be considered in the study of narrative identity.

To date, only one study examined autobiographical reasoning in vicarious memory, without specifically targeting intergenerational narratives (Lind & Thomsen, 2018). Lind and Thomsen (2018) examined causal connections, which explicitly link a past event to the current self by attributing a past event to a personal change (Habermas &

Bluck, 2000; McLean et al., 2007). Lind and Thomsen (2018) contrasted personal and vicarious life stories in the form of life story chapters within high school students. Lind and Thomsen (2018) did not observe gender differences for the vicarious protagonist for any variables. They concluded that identity disturbance was associated with fewer positive causal connections in personal and vicarious life stories. As well, they discovered that identity disturbance was associated with fewer positive chapters in personal life stories. They also examined empathy and found no relation between causal connections and vicarious life story chapters, although empathy was positively correlated with the frequency of positive connections in personal life story chapters. Overall, they concluded that vicarious life stories, in the form of chapters, do not directly contribute to identity; rather, they are related to personal life stories and thus may indirectly impact identity. The major difference between the current study and Lind and Thomsen (2018) was that they examined life story chapters, whereas the current study targeted high and low point narratives. Participants orally described vicarious memory reports in as much detail as possible, which may have given participants more opportunity to include self-event connections than Lind and Thomsen (2018). Furthermore, in the current study self-event connections were examined more broadly than causal connections. Although the methodology of Lind and Thomsen (2018) was quite different from that of the current study, both studies highlight the relevance of vicarious memory and prevalence of meaning-making from events that one has not directly experienced.

Fivush, Zaman et al. (2011) highlighted the use of intergenerational connections within intergenerational memory reports. They described intergenerational connections as a form of autobiographical reasoning in which one identifies a link between him or

herself and the parent who is the protagonist of an intergenerational story. They stated that intergenerational connections may reference parallels across generations, reference life lessons or values, or reference their current relationship with the parental protagonist. From their examination of intergenerational connections, Fivush, Zaman et al. (2011) did not observe gender differences for the participants, or gender differences based on the parental protagonist. In the current study, a similar form of autobiographical reasoning was examined. Considering that the vicarious memory reports were not restricted to intergenerational stories, a specific type of self-event connection was coined, “interpersonal connection.” Interpersonal connection parallels intergeneration connections from Fivush, Zaman et al. (2011); however, it also accounts for connections when parents are not the vicarious memory protagonist. In the current study, interpersonal connections occurred exclusively within vicarious memory reports, and they were defined as the explicit linking of the current self to a quality of the vicarious protagonist. For example:

*“I guess it’s like, it made me be more friendly at team outings and stuff, and like... I always try to like talk to new people. He’s like, my dad’s like really funny so I guess he was always like cracking jokes and stuff. So I try and be like that too.”*

In this narrative, the participant described his father’s experience playing basketball as an adolescent. The participant explicitly linked the event to qualities of his father and linked that quality of his father to his identity. The participant explicitly stated how the vicarious memory guided his personal behaviour and impacted his personal attributes. This specific example would also fall under the definition of intergenerational connection from Fivush, Zaman et al. (2011) because the vicarious memory protagonist was the participant’s father. This type of self-event connection occurred infrequently within the sample ( $M =$

0.18 across men and women for both positive and negative vicarious memory reports), therefore, interpersonal connections were not examined within statistical analyses. In future studies, it may be interesting analyze this type of meaning-making qualitatively.

### **Memory Centrality and Self-Event Connections**

It was hypothesized that there would be an association between negative self-event connections and centrality of negative events. That is, people who make more negative meaning out of negative experiences should identify negative events as more central to their identity. This relationship was not observed in the current study for personal or vicarious memory reports, which was inconsistent with the findings from Banks and Salmon (2013), who found a significant positive correlation between negative self-event connections and event centrality of negative personal memories. It should be noted, however, that this correlation detected by Banks and Salmon (2013) had a small effect size and was significant only when using an alpha of .05. Also, Banks and Salmon (2013) correlated event centrality with the proportion of negative self-event connections within negative memory reports, whereas in the current study overall self-event connection means were examined within each narrative. These differences between the current study and Banks and Salmon (2013) may have contributed to the inconsistent findings.

There were several significant positive correlations between event centrality and self-event connection valence within the current study. For women, there was a positive and significant correlation between event centrality and both positive and negative self-event connections within positive personal memory reports. That is, for women, positive or negative meaning-making within positive personal memories was related to increased



event centrality. This pattern of correlations was also present for the women' positive vicarious memory reports, which highlights that women make meaning out of events that they do not directly experience. Women who identify either personal or vicarious memory reports as central to their identity, are more likely to make both positive and negative meaning out of positive memory reports. Alternatively, this could suggest that when women use more self-event connections in descriptions of positive memory reports, they are more likely to rate the event as central to their identity. The relationship between self-event connections and event centrality of positive events was not observed within Banks and Salmon (2013); however, they did not examine men and women separately. The parallel between personal and vicarious memory reports observed within the current study demonstrates the importance of vicarious memory.

Compared to women, men presented with a different pattern of relations between self-event connection valence and event centrality. For negative personal memories, men exhibited a significant positive correlation between event centrality and positive self-event connections. That is, more frequent positive meaning-making was associated with increased event centrality within negative personal memory reports. This relationship was also observed for the men's vicarious memory reports; however, for men's vicarious memory reports there was also a significant positive correlation between event centrality and positive self-event connections within positive memory reports. The results suggest that men who identify either personal or vicarious memories as central to their identity are more likely to use positive self-event connections within negative memory reports. Alternatively, this could suggest that when men use more positive self-event connections in describing negative memory reports, they are more likely to rate the event as central to

their identity. Furthermore, for men's vicarious memory reports, but not personal memory reports, there was a significant relationship between event centrality and the average frequency of positive self-event connections within positive memory reports. This suggests that men who identify positive vicarious events as central to their identity are more likely to make more positive connections between themselves and the lives of others. These results were inconsistent with Banks and Salmon (2013) who did not observe any significant correlations between event centrality and positive self-event connections, which may reflect different methodologies. In particular, the current study elicited positive and negative memory reports through an oral in-person interview. This procedure differed from Banks and Salmon (2013) and Merrill et al. (2016) who asked participants to produce written narratives while in groups of two to eight, and five to ten respectively. The differences found between the current study and previous studies suggest that the way in which memory narratives are elicited has implications for the way that participants use self-event connections. There are strengths and limitations of each procedure.

Inconsistent with previous research, the results from the current study did not show an association between negative self-event connections and centrality of negative events. Nevertheless, there were correlations between self-event connections and event centrality, correlations which differed between men and women. For women, more positive and negative meaning-making within positive personal and vicarious memories was related to increased event centrality, while men showed positive correlations between positive meaning-making and event centrality within negative personal and negative vicarious memory reports. A noteworthy finding was that the pattern of self-event

connection use in positive and negative memories was similar between personal and vicarious memories for men and women.

### **Memory Centrality and Psychological Distress**

An additional aim of the current study was to examine the relationship between memory centrality and psychological distress. It was hypothesized that memory centrality for negative events would positively correlate with psychological distress. That is, people who identify negative events as highly central to their identity should have more psychopathology. This hypothesis was not supported by the results. Centrality of negative personal memory reports was not correlated with psychological distress. This finding conflicted with results in the literature, which has observed that identifying negative events as central to one's identity is associated with increased psychological distress (Banks & Salmon, 2013; Berntsen & Rubin, 2006; Berntsen, Willert & Rubin, 2003; Boals, 2010). Surprisingly, only centrality of negative vicarious memory reports significantly and positively correlated with psychological distress for both men and women. Although the relation between centrality of negative personal memory reports and psychological distress was not observed in the current study, the relation between centrality of negative vicarious memory reports and psychological distress parallels the research which has shown that people who identify negative personal memories as central to their identity endorse higher levels of psychological distress (Banks & Salmon, 2013; Berntsen & Rubin, 2006; Berntsen, et al., 2003). A possible explanation for this relationship is that people with negative affect are more likely to remember and integrate negative information from the lives of others, to fit with their cognitive schema (Beck,

1967; Blaney, 1986; Kuiper & Derry, 1982). It is unclear why this relationship did not exist between negative personal memory reports and psychological distress.

### **Self-Event Connections and Psychological Distress**

It was hypothesized that people who make more negative meaning out of negative events would exhibit more psychological distress. This hypothesis was not supported. Within the current study, there were no significant correlations between frequency of either type of self-event connection and psychological distress for men or women. The results of the current study suggest that the way in which young adults make meaning from events does not impact psychological distress. The absence of a relation between self-event connections and psychological distress within personal memory reports was inconsistent with previous findings (Banks & Salmon, 2013; Merrill et al., 2016). Merrill et al. (2016) found that university students who generated more negative self-event connections within negative memory reports reported higher degrees of psychological distress, while university students who generated more positive self-event connections within negative memory reports reported lower degrees of psychological distress. The results of the current study do not support an association between self-event connections and psychological distress in personal or vicarious memory reports.

It was also hypothesized that should a relationship between memory centrality and psychological distress be present, the valence of self-event connection would mediate the relationship between memory centrality and psychological distress. That is, individuals who identify negative experiences as central to their identity and describe these events using negative self-event connections should have more psychological distress than individuals who identify negative self-events as central to their identity and described

these events using positive self-event connections. This hypothesis was not supported. There were no significant correlations between self-event connections and symptoms of depression, anxiety, stress or psychological distress for either gender, which was inconsistent with Merrill et al. (2016) and Banks and Salmon (2013). Thus, a mediation analysis was not conducted.

The different findings between the current and previous studies highlights the need for further investigation. This incongruence may reflect sample or procedural differences, which suggests a need for more nuanced statistical analyses. Although no relations were found within the current study, the results of previous literature have demonstrated a relation between psychological distress and self-event connections (Banks & Salmon, 2013; Merrill et al., 2016); thus it would be interesting to compare vicarious and personal memory reports within a clinical population rather than a university setting. Multiple researchers (Banks & Salmon, 2013; Merrill et al., 2016) have noted that endorsing negative experiences as central to identity is not associated with psychopathology if the events are linked to positive aspects of the self. Perhaps the relation between psychological distress and self-event connections was not evident in the current study due to the relatively low endorsements of clinical variables and infrequent negative self-event connections. It would be interesting to see if participants with clinical levels of psychopathology differ from a university sample in the amount and type of self-event connections within personal or vicarious memory reports

### **Identity and Self-Event Connections**

The final aim of the current study was to examine correlations between self-event connections and each of the identity variables: identity commitment, identity exploration

and identity distress. These correlations were examined within all four memory types. It was hypothesized that individuals who generate more positive self-event connections within positive memory reports have more identity development (identity commitment and identity exploration), and a trend in which individuals who use more negative self-event connections have more identity distress. Based on the results by Merrill et al. (2016), it was expected that these relations would be present for personal memory reports. The data did not support these hypotheses, as these relationships were not observed within personal or vicarious memory reports.

In terms of identity commitment, the absence of significant correlations between self-event connections and identity commitment within personal memory reports was inconsistent with Merrill et al. (2016). Merrill et al. (2016) identified a positive correlation between identity commitment and positive self-event connections within trauma memory reports. That is, they found that participants who generated more positive self-event connections within trauma memory reports also reported higher levels of identity commitment. High levels of identity commitment indicate that one has committed to various identity variables, such as occupation, values, or relationships (Balistreri et al., 1995; Marcia, 1968). Identity commitment is often found to be associated with well-being, in that people who endorse high levels of identity commitment have fewer symptoms of psychopathology (Balistreri et al., 1995; Crocetti, Klimstra, Keijsers, Hale & Meeus, 2009; Luyckx et al., 2008; Merrill et al., 2016). In the current study, men who reported more negative self-event connections within positive memory reports reported less identity commitment. Despite this significant finding, this relationship was likely of

little clinical relevance given the very low frequency of negative self-event connections within positive memory reports.

In contrast to the hypothesis of the current study, there were no significant correlations between identity exploration and positive self-event connections within positive memory reports. Identity exploration is the extent to which one has explored alternative beliefs and values (Balistreri et al., 1995; Marcia 1968). To some degree, it is beneficial to engage in identity exploration, especially in adolescence and young adulthood when identity is developing. The findings within the current study were inconsistent with Merrill et al. (2016), who identified a positive correlation between identity exploration and positive self-event connections within positive memory reports. That is, they found that participants who produced more positive self-event connections within positive memory reports also endorsed higher levels of identity exploration. One possible explanation for this inconsistency was that the current sample differed from Merrill et al. (2016) in their endorsements of identity exploration. In the current study, men and women did not significantly differ in their mean scores of identity exploration. This finding was inconsistent with Merrill et al. (2016) who found a gender difference between men and women in their endorsements of identity exploration. Men and women in the current study endorsed higher levels of identity exploration (current study, men  $M = 66.56$ ; women  $M = 66.32$ ) than they did in the study by Merrill et al. (2016) (Merrill et al., 2016, men  $M = 59.06$ ; women  $M = 61.72$ ). The relationship between identity exploration and psychopathology is complex. Researchers have found that identity exploration is positively associated with openness and curiosity and positively associated with anxiety and depression (Berman, Schwartz, Kurtines & Berman, 2001; Luyckx,

Goossens & Soenens, 2006; Luyckx et al., 2008; Schwartz, Zamboanga, Weisskirch & Rodriguez, 2009). Although identity exploration may be beneficial in the long-term, in the short-term identity exploration may be associated with confusion as people explore beliefs that may contrast with familiar beliefs, or explore diverse peer groups (Schwartz et al., 2009).

In terms of identity distress, it was hypothesized that there would be a trend towards a positive relationship between identity distress and negative self-event connections within negative memory reports. Women endorsed significantly higher identity distress than men. Thus, the associations between self-event connections and identity variables were examined separately for men and women. There were no significant relations between self-event connections and identity distress for women. For men, however, there was a significant negative correlation between negative self-event connections generated within positive memory reports and identity distress. That is, men who produced more negative self-event connections within positive memory reports reported lower degrees of identity distress. This relationship for men was only present for vicarious memory reports. There were no significant correlations between self-event connections and identity distress within personal memory reports. This finding must be interpreted with caution given the low prevalence of negative self-event connections within positive vicarious memories. For men, there was also a significant moderate negative correlation between identity distress and the frequency of positive self-event connections within positive personal memories. That is, men who generated more positive self-event connections endorsed lower levels of identity distress. This finding suggests that men who make more positive self-event connections when discussing



positive personal events, are likely to have less identity distress than men who make fewer positive self-event connections. Merrill et al. (2016) also examined correlations between self-event connections and identity distress. They did not find any significant correlations, although they did find a trend towards a positive correlation between identity distress and negative self-event connections within trauma memory reports. That is, there was a non-significant relationship, in which participants who reported more negative self-event connections in positive memory reports trended towards endorsing higher levels of identity distress.

### **Vicarious Memories within the Theoretical Framework of Memory**

The role of vicarious memory within theoretical models of memory is unclear. Memories are broadly categorized as implicit or explicit based on whether or not memory retrieval requires conscious effort (Graf & Schacter, 1985; Schacter et al., 2000; Squire, 2004; Tulving, 1972). Explicit memory retrieval requires conscious effort and includes memories of facts or events (Graf & Schacter, 1985; Schacter et al., 2000; Squire, 2004). Tulving divided explicit memory into semantic and episodic memory (Tulving, 1972; 1985; 2002). Vicarious memories are certainly a type of explicit memory; however, there is debate regarding their current classification within semantic memory. Current memory frameworks classify vicarious memories within semantic memory, and only the specific memory of hearing another person talk about his or her experience is classified within episodic memory (Pillemer et al., 2015). Semantic memory is a general knowledge base, which refers to knowledge of information without awareness of where or when the information was obtained (Fivush, 2011; Schacter et al., 2000; Squire, 2004; Tulving, 1972, 2002). This definition does not appropriately account for vicarious memories, as

vicarious memories may be either specific or repeated, and associated with a particular time in which the vicarious protagonist experienced the event. Some researchers have argued that vicarious memories are much more complex than simply knowledge of another person's life, because vicarious memories have implications for identity development, intimacy and guiding future behaviours (Pillemer et al., 2015). Various researchers have challenged Tulving's (1972; 1985; 2002) framework of memory by arguing that conceptualizations of explicit memory should extend beyond general knowledge and memories of one-time events (Merrill et al., 2017; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Rubin & Umanath, 2015; Thomsen & Pillemer, 2017; Waters et al., 2014).

In contrast with Tulving's definition of episodic memory, recent studies suggest that in addition to specific one-day events, autobiographical memory should also include memories of events that occurred on multiple occasions or over an extended period of time (beyond one single day) (Peterson et al., 2016; Rubin & Umanath, 2015; Waters et al., 2014). There are three common types of memory for events, specific memories, repeated memories and extended memories (Barsalou, 1988; Waters et al., 2014). Given the functional relevance of each of these types of memories, Waters et al. (2014) argued that it is inappropriate to ignore nonspecific events within conceptualizations of episodic memory. The results of the current study further indicate that nonspecific memories are prevalent and serve important functions for young adults. Exclusively studying specific events may be inappropriate and result in the loss of valuable information associated with repeated and extended events.

The results of the current study support the inclusion of vicarious memory within Rubin and Umanath's (2015) framework of event memory. Rubin and Umanath (2015) described the concept of event memory, which is broadly defined as memories of events. Event memory encompasses memories of personally experienced events, imagined future events, and events not directly experienced (vicarious memories). The defining characteristic of event memory is the involvement of a mentally constructed scene (Rubin & Umanath, 2015). Though not directly assessed within the current study, Pillemer et al. (2015) discovered that young adults do construct a mental scene of vicarious memories, in which they either observe the scene occurring, or imagine themselves experiencing the event. Rubin and Umanath (2015) also stated that event memory is not restricted to one-time events; rather, it encompasses memories of events that were experienced on numerous occasions (repeated events). The results of the current study demonstrate that when young adults recall events that they experienced directly or heard about secondhand, they report memories of both specific and nonspecific events, which is consistent with Rubin and Umanath's (2015) event memory conceptualization. The third characteristic of Rubin and Umanath's (2015) framework of event memory is specific to vicarious memory, as it references the inclusion of events experienced by others in addition to the self. They highlighted that it is not necessary for the vicarious narrator to have experienced the event; rather their conceptualization allows for imagined future events or events that have been heard secondhand. Importantly, the framework proposed by Rubin and Umanath (2015) noted that like episodic memory, event memory does not include general knowledge (semantic memory). It is clear that vicarious memory fits well within Rubin and Umanath's model of event memory. Thus, the results of the current

study, and the framework of event memory (Rubin & Umanath, 2015), highlight the relevance of vicarious memories, which are currently inappropriately classified as semantic memories (Tulving, 1972, 1985, 2002).

Autobiographical memory has been defined in varying degrees of complexity (Baddeley, 2012; Conway, 2005; Fivush, 2011; Rubin & Umanath, 2015).

Autobiographical memories tend to be personally significant and are associated with personal emotions, motivations and goals (Conway, 2005; Conway et al., 2004; Fivush, 2011; Nelson & Fivush, 2004). Fivush (2011) further indicated that important aspects of autobiographical memory are the interpretation of past events and evaluation of the self. The results of the current study showed that vicarious memory serves many of the same roles as autobiographical memory. Fivush (2011) described episodic memory as the ability to recall an event, whereas autobiographical memory is a more complex process that requires the ability to recall personally experiencing (autonoetic consciousness) the event in addition to the details of what happened during the event. She emphasized that Tulving's (2002) defining features of episodic memory (autonoetic consciousness and key information such as when, where and what happened) can be separated. She suggested that retrieval of event details is the defining feature of episodic memories, and this information can be recalled without autonoetic consciousness. Fivush (2011) emphasized that the combination of autonoetic consciousness and event details are unique to autobiographical memory, whereas the memory of event details without autonoetic consciousness constitutes episodic memory. Based on this definition, vicarious memories are classified as episodic memories given that young adults can easily recall details of events in which they did not directly experience. Vicarious memory enhances social

relationships, enhances problem-solving and decision-making. Young adults perceive vicarious memories as highly emotional and personally significant. Furthermore, the results of the current study highlight that young adults do make interpretations and evaluations of vicarious memories, and these processes are associated with identity.

The findings from the current study provide support for McLean and Breen's (2015) concept of narrative ecologies, which posits that memories of events that one does not directly experience can impact one's narrative identity and sense of self. As described by McLean and Breen (2015), stories of other people's experiences impact one's personal memory and narrative identity. This was also evident in the current study because of the meaning-making within vicarious memory reports, which paralleled the pattern of meaning-making within personal memory reports. The results of the current study suggest that like Fivush and Merrill's (2016) exo-system within the ecological systems model of family narratives, vicarious memories of non-family members, in addition to family members, have an important influence on young adults. McLean (2016) stated that within the narrative ecology, family stories are the first layer beyond personally experienced events because the family has the greatest influence on the narrative ecology. She argued that it is within the family that the self takes on its earliest and most enduring form. The results of the current study showed that when given a choice, young adults are no more likely to identify vicarious memory reports from the lives of family members as they are from friends. This suggests that vicarious memory reports from both family members and friends are important. Further research is needed to directly contrast vicarious memory reports of family members and non-family members to identify whether these types of memories should fall within the same system, or if family narratives hold a special place

above vicarious memory reports from non-family members. The findings of this study support the findings of other researchers who argue that models of episodic memory should expand to include vicarious memory (Pillemer et al., 2015; Rubin & Umanath, 2015; Thomsen & Pillemer, 2017).

### **Strengths and Limitations**

The results and conclusions of this study must be interpreted within the context of the limitations of the study. The research questions and hypotheses focused on the presence of relationships among variables and as such, the study design was non-experimental. A limitation of non-experimental research is the inability to conclude causation. Therefore, the current study was able to identify significant relationships among variables, but it is inappropriate to discuss causes of these relationships.

Generalizability of results to other populations may be limited, as the current sample was a predominantly white, university sample (Henrich et al., 2010). Therefore, socio-economic status or cognitive functioning may limit generalizability of the results. Furthermore, participants within the current study ranged in age from 17 through 29 years of age. Thus, findings cannot be generalized to older or younger populations. Although not directly assessed within the current study, the ethnic make-up of the Memorial University student population is predominately Caucasian. The large proportion of Caucasian participants closely mirrored the ethnic make-up of Newfoundland; however, it limited the generalizability to other ethnic groups. Future studies examining vicarious memory must study other ethnic and cultural groups.

It is likely that a self-selection bias was present for the current sample. Most participants were incentivized by the opportunity to receive course credit as part of a

psychology course. Thus, most participants had chosen to enroll in a psychology course. An effort to reduce this form of self-selection was employed by recruiting volunteers throughout campus who were not necessarily enrolled in a psychology course. In addition, there may be an additional self-selection bias with regards to the students within the psychology courses. These students were presented with several options for how to receive course credit. Their options consisted of in-person interviews, online surveys and in-person computer tasks. Perhaps students that were introverted or anxious were more likely to select a method in which they did not have to engage in an interview. All of these sample characteristics are a potential barrier to generalizability. The findings from the current study may not reflect associations that would exist in more heterogeneous samples.

Although not directly assessed, it was observed that participants identified multiple formats in which they first heard about the vicarious memories. Many participants indicated that they heard about the event in-person, which was the expected way that participants heard about the life events of others; however, numerous participants mentioned that they learned about events via telephone, e-mail or through text message. In some cases, participants indicated that they were informed of events as they occurred via texting, especially with peers. For example, one participant indicated that her friend told her about a negative event via text as the event was occurring. It is possible that the way in which the participants learned about the events had an impact on memory recall or meaning-making.

A strength of the current study was the methodological procedure. Recruitment and interviewing of participants occurred between July 2016 and April 2017, which

encompassed three academic semesters. Students may have felt relatively good at the beginning of the semester, more distressed during the midterm period, and potentially either more distressed (due to final exams) or less distressed (if happily anticipating the end of the semester) at the end of the semester. Given that mood can impact memory retrieval (e.g. Dalgleish & Watts, 1990; Teasdale & Russell, 1983; Watkins, 2002), students' performance on memory tasks may have varied depending on the time of their participation; despite this possibility, because participants were recruited throughout the year there should be minimal, if any, impact of the time of interview on the results.

Three women conducted the majority of the interviews. The presence of multiple interviewers may be viewed as a limitation of this study because it could risk consistency across interviews; however, multiple interviewers reduced the likelihood that interviewer effects impacted the results of the study. An additional strength of this study was the examination of self-event connections within the context of an oral interview, rather than a written format. There are several strengths associated with oral interviews compared to written essays, such as increased motivation and decreased fatigue (Adler et al., 2016).

Given the importance of non-specific memories (Peterson et al., 2016; Rubin & Umanath, 2015; Waters et al., 2014), a strength of the current study is that participants were encouraged to recall both specific and non-specific memories. Although this is considered a strength of the current study, it is possible that this focus is responsible for some differences between the current study and previous research because previous researchers have generally examined self-event connections and vicarious memories within the context of specific, one-time events. Although the majority of the memory reports referenced specific events (range: 57.0 – 69.7% across four memory types), it is



noteworthy that many participants referred to nonspecific events (range: 30.3 – 40.3% across four memory types).

### **Clinical Implications**

The DSM-5 condition post-traumatic stress disorder is a serious mental illness, which involves long-term negative symptoms in response to a trauma or stressful event (APA, 2013). A defining criterion of PTSD is exposure to a traumatic event, and this exposure includes learning that a family member or close friend experienced a trauma. The DSM-5 highlights that clinical psychologists recognize the impact of negative vicarious events, while the memory literature is only beginning to acknowledge the importance of vicarious memory. The current study contributes to the existing literature on vicarious memory by showcasing the importance of negative vicarious memory and expanding the literature to highlight the importance of positive vicarious memory. Although additional research is needed regarding positive vicarious memories, it may be advantageous for clinical therapists to inquire about positive and negative vicarious memories and potentially integrate aspects of those memories into therapeutic interventions. Therapists often encourage clients identify personal strengths from their own past experiences (Seligman, 2002; Seligman, Steen, Park & Peterson). Perhaps this type of therapeutic intervention could become even more useful if clients are also encouraged to reflect on and draw from their memories of others' experiences.

**Autobiographical reasoning in vicarious memories.** An important conclusion of this study is that the process of making meaning from past events is not unique to events directly experienced. Many researchers have found that making meaning out of personally experienced events is related to identity development and psychological well-

being (Banks & Salmon, 2013; McLean & Fournier, 2008; Merrill et al., 2016). Although these specific relationships were not observed in the current study, the current study expanded upon these studies by demonstrating that young adults make connections between events experienced by others (vicarious memory reports) and enduring aspects of themselves. In this study, self-event connections within vicarious memory reports were prevalent and followed the same pattern as within personal memories. This underscores the conclusion that the ability to create meaning from an event is not specific to personally experienced events and strongly supports the importance of vicarious memories. The ability to create meaning from events not directly experienced has direct implications for the therapeutic context. Specifically, therapists can support clients as they make meaning from events in their own lives, in addition to the lives of others. Therefore, this would provide a larger pool of events that the client can use to identify life lessons and personal values, thus potentially impacting motivation for therapy and therapeutic goals.

**Identity.** In terms of event centrality, participants rated vicarious events as central to their identity, though far less central than memories of personally experienced events. Vicarious memories may be of importance because, like personal memories, they can become a reference point for the generation of expectations and attribution to meaning within other life events. The finding that events that one has not directly experienced can be central to one's identity is a crucial finding, which highlights the importance of vicarious memory. Many studies have demonstrated an association between centrality of negative personal events and psychopathology, including depression, post-traumatic stress and anxiety (Allbaugh, O'Dougherty, Wright & Folger, 2016; Berntsen & Rubin,

2006; Berntsen & Rubin, 2007; Gehrt, Berntsen, Hoyle & Rubin, 2018). Inconsistent with previous studies, participants in the current study did not exhibit a correlation between centrality and psychological distress for personally experienced negative events. There is no clear explanation for this incongruence; however, perhaps the DASS-21 was not sensitive enough to capture the relationship, or participants within the study did not endorse high enough levels of psychological distress necessary to observe this relationship. One significant and noteworthy finding within the current study was that memory centrality for negative vicarious events positively correlated with psychological distress. This finding parallels the literature on personal memories, which has observed self-reported centrality for negative personal events are associated with higher degrees of psychopathology (Berntsen & Rubin, 2007; Berntsen et al., 2011; Boals, 2010; Scherman et al., 2015). This finding has implications for the clinical value of vicarious memory, as it suggests that people who identify negative events as central to their identity are at an increased risk of psychopathology, even if they did not personally experience the negative event. Expanding upon Berntsen and Rubin's (2006) conclusions regarding event centrality and personal memories, it appears that identifying negative vicarious memories as central to one's identity may cause people to overestimate the likelihood that similar events will occur in the future and consequently use them as reference points for generation of expectations and meaning from future events.

**Psychological distress.** In the current study, participants who endorsed negative vicarious memories as central to their identity had higher levels of psychological distress. This relation paralleled findings from previous research examining personal memory reports, which highlighted an association between negative event centrality and

psychological distress (Banks & Salmon, 2013). This finding demonstrates the importance of vicarious memory and suggests that vicarious memory may have implications for psychopathology. This relation may reflect a cognitive bias to perceive and integrate both negative personal experiences and negative stories not directly experienced, into their identity (Beck, 1967; Blaney, 1986; Kuiper & Derry, 1982). The results of the current study suggest that clinical therapists should not disregard vicarious memory reports within the context of therapy. Rather, it may be advantageous for therapists to inquire about positive and negative vicarious memories when relevant. A treatment avenue for clinical therapists would be to inquire about their clients' vicarious memories and potentially integrate aspects of those memories into therapeutic interventions. Therapists often encourage clients identify personal strengths from their own past experiences. Perhaps this type of therapeutic intervention could become even more useful if clients are also encouraged to reflect on and draw from their memories of others' experiences. Researchers should further examine vicarious memory reports within clinical samples.

An overwhelming amount of research has demonstrated an association between autobiographical memory reports and psychopathology (Sumner, Griffith, & Mineka, 2010; Williams & Broadbent, 1986; Williams, et al., 2007; Adler, Skalina, McAdams, 2008; Lysaker & Lysaker, 2006; McAdams, Reynolds, Lewis, Patten, & Bowman, 2001), and the results from the current study which highlight the parallels between personal and vicarious memory suggest that vicarious memory may also have implications for psychopathology. With regards to the autobiographical memory literature, associations between memory and psychopathology have largely focused on specificity of memory

recall, themes of agency, themes of redemption, and narrative length. The tendency to recall non-specific, rather than specific, memories is associated with symptoms of psychopathology (Sumner, Griffith, & Mineka, 2010; Williams & Broadbent, 1986; Williams, et al., 2007). Patients with depression tend to report events from their life in a generalized, rather than specific, manner (Williams, 1986; Williams, et al., 2007). This means that people with depression are less likely to recall a specific one-day event; rather, they are more likely to recall a series of events or an event that extended over a long period. It is hypothesized that the tendency towards reporting generalized memories represents an avoidance strategy and has been identified as a vulnerability factor for depression and predicts worse prognosis for individuals with depression (Sumner et al., 2010).

Beyond specificity, people who describe personal life experiences using themes of agency have more positive psychological functioning (Adler, Skalina, McAdams, 2008; Lysaker & Lysaker, 2006). Themes of agency within a personal narrative suggest that the narrator believes that he or she has the ability to change his or her own life (McAdams, 2006). The relation between psychological functions and agency suggests that therapists should monitor clients' language for indicators of their sense of agency (Lysaker & Lysaker, 2006). Adler (2012) conducted a longitudinal study to examine narrative identity and mental health. In his study, participants attended psychotherapy for a maximum of 12 sessions, and after each session participants wrote a narrative about the session and its impact on himself or herself. The researchers coded the narratives and found an association between increases in agency and improvement of mental health. The researchers discovered that the increased agency temporally preceded improvement in

mental health. The results suggest that agency leads to improvements in therapy and agency may be an important mechanism of change within the therapeutic process. The findings from Adler (2012) highlight the relevance of narrative identity and agency within therapy.

When examining the content of narratives, individuals who tell personal narratives with themes of redemption rather than contamination tend to score higher on measures of psychological well-being (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001). This suggests that the way people conceptualize their life events has important implications for psychological functioning. Baerger and McAdams (1999) identified an association between narrative production and psychological well-being, in which higher well-being was positively correlated with longer and more elaborative narrative production. This suggests that longer and more elaborative narratives are indicative of positive psychological functioning. Overall, these findings highlight the importance of memories of personal experiences when considering psychological health. The results of the current study suggest that vicarious memories parallel personal memories in many ways. Given the various correlations between personal memories and psychopathology, it is possible that vicarious memories also have implications for psychological functioning.

**Implications for therapeutic intervention.** The importance of personal stories is well recognized in therapeutic contexts. Social constructionism emphasizes that people individually construct their understanding of reality; however, this understanding is heavily impacted by social factors (White & Epston, 1990). Narrative therapists acknowledge that people create meaning from their experiences and develop life stories (White & Epston, 1990). They conceptualize client problems as the result of the social,

cultural or political context that impact personal narratives (e.g. social narratives about body image). Narrative therapy aims to empower and support clients to change their personal narrative, which will subsequently change the problem (Cobb & Negash, 2010). In psychotherapy, the process of re-authoring narratives, increasing personal agency and shifting the perceived problem from within the client to external to the client, accomplish this goal. An example of re-authoring is supporting a client with a history of trauma by shifting their perceived self-image from “victim” to “survivor”. This change in perspective is associated with therapeutic improvement (Meichenbaum, 1999, as cited in Szabó, Tóth & Pakai, 2014). The findings from the current study, and recent research on vicarious memory (Fivush & Zaman, 2011; Lind & Thomsen, 2018; Merrill & Fivush, 2016; Merrill et al., 2017; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Reese et al., 2017; Thomsen & Pillemer, 2017), suggest that vicarious memories should not be disregarded within the therapeutic contexts. Vicarious memories serve social, directive and self-continuity functions, and people connect aspects of their current self to the experiences of others. The specific clinical utility of vicarious memory within the therapeutic context may be a rich area for future research.

Dunlop and Tracy (2013) examined autobiographical reasoning among abstinent alcoholics. For their study, they recruited participants who were members of Alcoholics Anonymous (AA), a common community-based self-help group program for alcoholics. Participation in 12-step programs, such as AA, has been associated with recovery among alcoholics (Cloud et al., 2006; Gossop, Steward & Marsden, 2008; Gossop et al., 2003; Kissin, McLeod & McKay, 2003; Moos & Moos, 2006; Moos & Moos 2004; Vaillant, 2005). Dunlop and Tracy (2013) asked participants to describe the last time they drank

alcohol and felt badly about it, and they also asked participants to recall the last time they wanted a drink but did not drink. They discovered that participants who generated positive self-event connections in their stories had higher self-esteem than participants who did not report positive self-event connections. Furthermore, there was a trend in which participants who reported fewer positive self-event connections had more psychological distress than participants who reported more positive self-event connections. They concluded that a perceived positive character change is helpful for people with addictions. Furthermore, they found that participants who perceived a positive self-change also tended to have higher self-esteem, authentic pride, and improved mental health. Although not the focus of Dunlop and Tracy's (2013) study, their research has implications for vicarious memory. An important component of AA is listening to others' experience of success and struggle with alcoholism (Alcoholics Anonymous World Services, 2001). Therefore, the more often individuals attend AA, the more stories they hear from peers. Given the positive relation between AA attendance and alcohol abstinence (Cloud et al., 2006; Gossop, Steward & Marsden, 2008; Gossop et al., 2003; Kissin, McLeod & McKay, 2003; Moos & Moos, 2006; Moos & Moos 2004; Vaillant, 2005), it is possible that listening to stories of other's experiences with alcoholism contributes to recovery, suggesting a specific context in which vicarious memory may be particularly clinically important. The results of the current study revealed that people generate connections between the positive and negative experiences of others and their current selves. Perhaps this process occurs within self-help interventions, such as AA, and may contribute to recovery. By comparing one's self to the struggles of others, one may view their own life as more positive. Alternatively, comparing one's self to the success of



others who previously struggled with alcoholism may increase optimism for the possibility of recovery and increase self-efficacy. It is noteworthy that although there is an AA emphasis on hearing about other people's experience, there are other factors of the program that also likely contribute to recovery, including social support, spirituality, and motivation (Groh, Jason & Keys, 2008; Tonigan, Bogenschutz, & Miller, 2006; Vaillant, 2005). It is likely that many factors of the 12-step recovery program contribute to recovery, rather than one specific causal factor. Nevertheless, the results of the current study suggest that vicarious memory may serve an important role in other group therapy contexts. Researchers should further examine the usefulness of group members sharing personal stories within group therapy contexts. Aside from the process of generating self-event connections within the group therapy process, the disclosure of personal stories within the group therapy context may have other benefits. In particular, the results of the current study highlight the social function of vicarious memory, whereby people feel a heightened sense of intimacy towards people after learning about highly emotional personal experiences. The simple act of storytelling may increase trust among group members and therefore, increase group cohesion. Group cohesion is recognized as a critical element of successful group therapy programs (Burlingame, McClendon & Yang, 2018).

Researchers have demonstrated that narrative identity and narrative style are amenable to intervention. Szabó et al. (2014) designed a study in which they specifically targeted narrative identity by conducting narrative restructuring intervention on clients diagnosed with alcohol dependence. As part of this treatment, participants wrote brief autobiographies and discussed them among the group. Participants were instructed to

write new autobiographies and follow directions in their writing. One of the directions was to include more causative language, to increase a sense of agency among the participants. After 12 sessions, within three weeks, participants in the treatment condition exhibited a significant reduction in hopelessness and a significant increase in problem-solving ability, compared to participants who received treatment as usual. The researchers concluded that narrative restructuring techniques may be a valuable adjunct to current treatment for alcoholism. They posited that targeting the narrative structure of participant's life stories may impact cognitive domains of their functioning, such as dysfunctional attitudes or maladaptive schema. The results from Adler (2012) and Szabó et al. (2014) demonstrate the importance of narrative identity and agency within the therapeutic process. It may be useful for therapists to monitor clients' language and themes of agency, as this could be an area of intervention. To date, no study has examined agency within vicarious narratives. Perhaps a lack of agency within personal narratives, in conjunction with a perceived sense of agency of the experiences of peers or family, could result in heightened psychological distress. Future research may benefit from investigating this hypothesis.

### **Future Directions**

Future research should study vicarious memory by examining vicarious memory reports and meaning-making within other populations to increase generalizability. The current study specifically examined Canadian university students ages 17 through 29. Future research could examine younger and older populations, community samples and clinical samples. In addition, intergenerational memories have been examined across cultures (Reese et al., 2017; Wang, 2013). Future studies should continue to examine

cultural differences in vicarious memory. As discovered by Wang (2013), Asian Americans talk more about vicarious events in comparison to European American families. This finding suggests that vicarious memory may be more important among certain cultural groups. Given the differences between intergenerational memories between cultures, it is likely that other types of vicarious memories also have cultural differences.

The accuracy of the vicarious memory reports was not examined within this study, but this could be an interesting avenue of study for future research. This would require participants to provide contact information of the vicarious memory protagonist who could describe their memory of the event. As suggested by Thomsen and Pillemer (2017), vicarious memory is used to both expand the self-concept, in addition to accurately representing the other person. Future research may benefit from examining this secondary purpose by specifically examining the implications of vicarious memory for social relationships.

There is an increasing amount of research that has studied intergenerational narratives (e.g.: Fivush & Zaman, 2013; Merrill & Fivush, 2016; Merrill et al., 2017; Reese et al., 2017; Zaman & Fivush, 2011), which are memories children and youth have about the childhood of their parents or grandparents. It may be fruitful to examine adults' vicarious memories of events that their children (young children or adult children) directly experienced. Either highly positive or highly negative experiences of children or grandchildren could be salient in the lives of adults, especially during different periods of identity development.

**Conclusion**

Few studies have examined vicarious memories beyond vicarious trauma or intergenerational narratives (Lind & Thomsen, 2018; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Thomsen & Pillemer, 2017). The current study expanded upon Pillemer et al. (2015) and Merrill et al. (2016) and provided a unique contribution to the literature through an examination of highly emotional vicarious memory reports (positive and negative) in contrast to highly emotional personal memory reports among young adults. This study demonstrates that there is little justification for the exclusion of vicarious memory from studies of episodic memory. The results indicate that vicarious memory reports and personal memory reports share many phenomenological and functional properties. Although to a lesser degree than personal memories, vicarious memories do influence decision-making and problem-solving. A particularly important function of vicarious memory is enhancing intimacy, which may be especially relevant within the context of positive vicarious memories. In addition, young adults do endorse vicarious memories as central to their identities. Although less than personal memory reports, young adults endorse vicarious memory reports as a reference point for interpreting other life experiences. Finally, young adults do make meaning about themselves from highly emotional vicarious memory reports, and they do so in a pattern that parallels meaning-making of highly emotional personal memory reports. This study contributes valuable information to the memory literature by highlighting the relevance of vicarious memory reports. The results support recent literature that vicarious memory should be considered in models of episodic memory (Lind & Thomsen, 2018; Merrill &

Fivush, 2016; Merrill et al., 2017; Panattoni & Thomsen, 2018; Pillemer et al., 2015; Rubin & Umanath, 2015; Thomsen & Pillemer, 2017).

## References

- Adler, J. M. (2012). Living into the story: Agency and coherence in a longitudinal study of narrative identity development and mental health over the course of psychotherapy. *Journal of Personality and Social Psychology, 102*, 367–389. doi: 10.1037/a0025289
- Adler, J. M., Lodi-Smith, J., Philippe, F. L., & Houle, I. (2016). The incremental validity of narrative identity in predicting well-being: A review of the field and recommendations for the future. *Personality and Social Psychology Review, 20*, 142-175. doi:10.1177/1088868315585068
- Adler, J. M., Skalina, L. M., & McAdams, D. P. (2008). The narrative reconstruction of psychotherapy and psychological health. *Psychotherapy Research, 18*, 719–734. doi: 10.1080/10503300802326020
- Alcoholics Anonymous World Services. (2001). *Alcoholics Anonymous: The story of how many thousands of men and women have recovered from alcoholism. (4th ed)*, New York, NY.
- Alea, N., & Bluck, S. (2007). I'll keep you in mind: The intimacy function of autobiographical memory. *Applied Cognitive Psychology, 21*, 1091-1111. doi:10.1002/acp.1316.
- Allbaugh, L. J., Wright, M. O., & Folger, S. F. (2016). The role of repetitive thought in determining posttraumatic growth and distress following interpersonal trauma. *Anxiety, Stress & Coping: An International Journal, 29*, 21–37. doi: 10.1080/10615806.2015.1015422

- American Psychiatric Association, (2013). Diagnostic and statistical manual of mental disorders: DSM-5. (Fifth ed.). Washington, DC.
- Anders, S. L., Frazier, P. A., & Frankfurt, S. B. (2011). Variations in criterion A and PTSD rates in a community sample of women. *Journal of Anxiety Disorders, 25*, 176–184. doi: 10.1016/j.janxdis.2010.08.018
- Arnett, J., J. (2000). Emerging Adulthood: A Theory of Development from the Late Teens through the Twenties. *American Psychologist, 55*, 469-80. doi: 10.1037/0003-066X.55.5.469
- Baddeley, A. (2012). Working memory: Theories, models, and controversies. *Annual Review of Psychology, 63*, 1–29. doi: 10.1146/annurev-psych-120710-100422.
- Baerger, D. R., & McAdams, D. P. (1999). Life story coherence and its relation to psychological well-being. *Narrative Inquiry, 9*, 69–96. doi: 10.1075/ni.9.1.05bae
- Banks, M. V., & Salmon, K. (2013). Reasoning about the self in positive and negative ways: Relationship to psychological functioning in young adulthood. *Memory, 21*, 10-26. doi:10.1080/09658211.2012.707213
- Balistreri, E., Busch-Rossnagel, N. A., & Geisinger, K. F. (1995). Development and preliminary validation of the Ego Identity Process Questionnaire. *Journal of Adolescence, 18*, 179-192. doi:10.1006/jado.1995.1012
- Barsalou, L. W., (1988). The Content and Organization of Autobiographical Memories. In U. Neisser & E. Winograd (Eds.), *Remembering reconsidered: Ecological and Traditional Approaches to the Study of memory*. New York: Cambridge University Press. Retrieved from: [http://barsaloulab.org/Online\\_Articles/1988-Barsalou-chap-organization\\_autobiographical\\_memory.pdf](http://barsaloulab.org/Online_Articles/1988-Barsalou-chap-organization_autobiographical_memory.pdf).

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. Philadelphia, PA: University of Pennsylvania Press.

Beidel, D. C., Alfano, C. A., Kofler, M. J., Rao, P. A., Scharfstein, L., & Sarver, N. W. (2014). The impact of social skills training for social anxiety disorder: A randomized controlled trial. *Journal of Anxiety Disorders, 28*, 908–918. doi: 10.1016/j.janxdis.2014.09.016

Berman, S. L., Montgomery, M. J., & Kurtines, W. M. (2004). The development and validation of a measure of identity distress. *Identity: An International Journal of Theory And Research, 4*, 1-8. doi:10.1207/S1532706XID0401\_1

Berman, A. M., Schwartz, S. J., Kurtines, W. M., & Berman, S. L. (2001). The process of exploration in identity formation: The role of style and competence. *Journal of Adolescence, 24*, 513–528. doi: 10.1006/jado.2001.0386

Berntsen, D., & Rubin, D. C. (2006). The centrality of event scale: A measure of integrating a trauma into one's identity and its relation to post-traumatic stress disorder symptoms. *Behaviour Research and Therapy, 44*, 219-231. doi:10.1016/j.brat.2005.01.009

Berntsen, D., & Rubin, D. C. (2007). When a trauma becomes a key to identity: Enhanced integration of trauma memories predicts posttraumatic stress disorder symptoms. *Applied Cognitive Psychology, 21*, 417-431. doi:10.1002/acp.1290

Berntsen, D., Rubin, D. C., & Siegler, I. C. (2011). Two versions of life: Emotionally negative and positive life events have different roles in the organization of life story and identity. *Emotion, 11*, 1190-1201. doi:10.1037/a0024940

Berntsen, D., Willert, M., & Rubin, D. C. (2003). Splintered memories or vivid



- landmarks? Qualities and organization of traumatic memories with and without PTSD. *Applied Cognitive Psychology, 17*, 675–693. doi:10.1002/acp.894
- Blaney, P. H. (1986). Affect and memory: A review. *Psychological Bulletin, 99*, 229–246. doi: 10.1037/0033-2909.99.2.229
- Bluck, S., & Habermas, T. (2000). The life story schema. *Motivation and Emotion, 24*, 121–147. doi: 10.1023/A:1005615331901
- Bluck, S., & Alea, N. (2008). Remembering being me: The self continuity function of autobiographical memory in younger and older adults. In F. Sani (Ed.), *Self continuity: Individual and collective perspectives* (pp. 55-70). New York, NY: Psychology Press.
- Bluck, S., Alea, N., Habermas, T., & Rubin, D. C. (2005). A Tale of Three Functions: The Self-Reported Uses of Autobiographical Memory. *Social Cognition, 23*, 91-117. doi:10.1521/soco.23.1.91.59198
- Boals, A. (2010). Events that have become central to identity: Gender differences in the centrality of events scale for positive and negative events. *Applied Cognitive Psychology, 24*, 107-121. doi:10.1002/acp.1548
- Boland, A., Haden, C., & Ornstein, P. (2003). Boosting Children's Memory by Training Mothers in the Use of an Elaborative Conversational Style as an Event Unfolds. *Journal of Cognition and Development, 4*, 39-65. doi:10.1207/S15327647JCD4,1-02
- Breen, A. V., McLean, K. C., Cairney, K., & McAdams, D. P. (2017). Movies, books, and identity: Exploring the narrative ecology of the self. *Qualitative Psychology, 4*, 243–259. doi: 10.1037/qup0000059

- Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.
- Buchanan, T. W. (2007). *Retrieval of emotional memories*. *Psychological Bulletin*, *133*, 761-779. doi:10.1037/0033-2909.133.5.761
- Buckner, J. P., & Fivush, R. (2000). Gendered themes in family reminiscing. *Memory*, *8*, 401-412. doi: 10.1080/09658210050156859
- Burlingame, G. M., McClendon, D. T., & Yang, C. (2018). Cohesion in group therapy: A meta-analysis. *Psychotherapy*, *55*, 384-398. doi: 10.1037/pst0000173
- Choi, S. H. (1992). Communicative socialization processes: Korea and Canada. In S. Iwawaki, Y. Kashima, & K. Leung (Eds.), *Innovations in cross-cultural psychology*. (pp. 103-122). Lisse: Swets & Zeitlinger Publishers. Retrieved from <http://search.ebscohost.com.qe2a-proxy.mun.ca/login.aspx?direct=true&AuthType=ip,url,uid&db=psych&AN=1992-98059-007&site=ehost-live&scope=site>
- Cloud, R. N., Besel, K., Bledsoe, L., Golder, S., McKiernan, P., Patterson, D., & Ziegler, C. H. (2006). Adapting Motivational Interviewing Strategies to Increase Posttreatment 12-Step Meeting Attendance. *Alcoholism Treatment Quarterly*, *24*, 31-53. doi: 10.1300/J020v24n03\_03
- Cobb, R. A., & Negash, S. (2010). Altered book making as a form of art therapy: A narrative approach. *Journal of Family Psychotherapy*, *21*, 54-69. doi: 10.1080/08975351003618601

- Cohen, K., & Collens, P. (2013). The impact of trauma work on trauma workers: A metasynthesis on vicarious trauma and vicarious posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*, 570–580. doi:10.1002/acp.2350010104
- Conway, M. A. (2005). Memory and the self. *Journal Of Memory And Language, 53*, 594-628. doi:10.1016/j.jml.2005.08.005
- Conway, M. A., Meares, K., & Standart, S. (2004). Images and goals. *Memory, 12*, 525–531. doi: 10.1080/09658210444000151
- Conway, M. A., & Pleydell-Pearce, C. W. (2000). The construction of autobiographical memories in the self-memory system. *Psychological Review, 107*, 261-288. doi:10.1037/0033-295X.107.2.261
- Cox, K., & McAdams, D. P. (2014). Meaning making during high and low point life story episodes predicts emotion regulation two years later: How the past informs the future. *Journal of Research in Personality, 50*, 66–70. doi: 10.1016/j.jrp.2014.03.004
- Crocetti, E., Klimstra, T., Keijsers, L., Hale, W. W., III, & Meeus, W. (2009). Anxiety trajectories and identity development in adolescence: A five-wave longitudinal study. *Journal of Youth and Adolescence, 38*, 839–849. doi: 10.1007/s10964-008-9302-y
- Dalgleish, T., & Watts, F. N. (1990). Biases of attention and memory in disorders of anxiety and depression. *Clinical Psychology Review, 10*, 589–604. doi: 10.1016/0272-7358(90)90098-U

- Duke, M. P., Lazarus, A., & Fivush, R. (2008). Knowledge of family history as a clinically useful index of psychological well-being and prognosis: A brief report. *Psychotherapy: Theory, Research, Practice, Training, 45*, 268–272. doi: 10.1037/0033-3204.45.2.268
- Dunlop, W. L., & Tracy, J. L. (2013). The autobiography of addiction: Autobiographical reasoning and psychological adjustment in abstinent alcoholics. *Memory, 21*, 64–78. doi: 10.1080/09658211.2012.713970
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191. doi:10.3758/bf03193146
- Fivush, R. (2008). Remembering and reminiscing: How individual lives are constructed in family narratives. *Memory studies, 1*, 49-58. doi: 10.1177/1750698007083888
- Fivush, R. (2011). The development of autobiographical memory. *Annual Review Of Psychology, 62*, 559-582. doi:10.1146/annurev.psych.121208.131702
- Fivush, R., Berlin, L. J., Sales, J. M., Mennuti-Washburn, J., & Cassidy, J. (2003). Functions of parent-child reminiscing about emotionally negative events. *Memory, 11*, 179–192. doi: 10.1080/741938209
- Fivush, R., Bohanek, J. G., & Zaman, W. (2011). Personal and intergenerational narratives in relation to adolescents' well-being. In T. Habermas (Ed.), *The development of autobiographical reasoning in adolescence and beyond* (pp. 45-57). San Francisco, CA: Jossey-Bass. Retrieved from <http://web.a.ebscohost.com.qe2a->

proxy.mun.ca/ehost/pdfviewer/pdfviewer?vid=4&sid=cccd72ab-25f5-4013-bd22-91f7a3a88558%40sdc-v-sessmgr02

Fivush, R., Bohanek, J. G., Zaman, W., & Grapin, S. (2012). Gender differences in adolescents' autobiographical narratives. *Journal Of Cognition And Development, 13*, 295-319. doi:10.1080/15248372.2011.590787

Fivush, R., Habermas, T., Waters, T., & Zaman, W. (2011). The making of autobiographical memory: Intersections of culture, narratives and identity. *International Journal of Psychology, 46*, 321–345. doi: 10.1080/00207594.2011.596541

Fivush, R., & Merrill, N. (2014). The personal past as historically, culturally and socially constructed. *Applied Cognitive Psychology, 28*, 301–303. doi: 10.1002/acp.3017

Fivush, R., & Merrill, N. (2016). An ecological systems approach to family narratives. *Memory Studies, 9*, 305-314. doi: 10.1177/1750698016645264

Fivush, R., & Zaman, W. (2014). Gender, subjective perspective, and autobiographical consciousness. In P. J. Bauer & R. Fivush (Eds.), *The Wiley handbook on the development of children's memory*, Vols. I-III. (pp. 586–604). Chichester, West Sussex: John Wiley & Sons. Retrieved from

<http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,uid&db=psyh&AN=2013-26762-025&site=ehost-live&scope=site>

Friedman, M. J., Resick, P. A., Bryant, R. A., & Brewin, C. R. (2011). Considering PTSD for DSM-5. *Depression and Anxiety, 28*, 750–769. doi: 10.1002/da.20767

- Gehrt, T. B., Berntsen, D., Hoyle, R. H., & Rubin, D. C. (2018). Psychological and clinical correlates of the Centrality of Event Scale: A systematic review. *Clinical Psychology Review, 65*, 57–80. doi: 10.1016/j.cpr.2018.07.006
- Ginsburg, R. (2016). *Associations between depression, trauma, and earliest autobiographical memories* (Doctoral dissertation, Memorial University of Newfoundland). Retrieved from <http://research.library.mun.ca/12471/>
- Graf, P., & Schacter, D. L. (1985). Implicit and explicit memory for new associations in normal and amnesic subjects. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 11*, 501–518. doi: 10.1037/0278-7393.11.3.501
- Gossop, M., Harris, J., Best, D., Man, L., Manning, V., Marshall, J. and Strang, J. 2003. Is attendance at Alcoholics Anonymous meetings after inpatient treatment related to improved outcomes? A 6-month follow-up study. *Alcohol and Alcoholism, 38*, 421–426. doi: 10.1093/alcalc/agg104
- Gossop, M., Stewart, D. and Marsden, J. 2008. Attendance at Narcotics Anonymous and Alcoholics Anonymous meetings, frequency of attendance and substance use outcomes after residential treatment for drug dependence: A 5-year follow-up study. *Addiction, 103*, 119–125. doi: 10.1111/j.1360-0443.2007.02050.x
- Groh, D. R., Jason, L. A. and Keys, C. B. 2008. Social network variables in Alcoholics Anonymous: A literature review. *Clinical Psychology Review, 28*, 430–450. doi: 10.1016/j.cpr.2007.07.014
- Gryzman, A., & Hudson, J. A. (2013). Gender differences in autobiographical memory: Developmental and methodological considerations. *Developmental Review, 33*, 239–272. doi: 10.1016/j.dr.2013.07.004

Habermas, T., & Bluck, S. (2000). Getting a life: The emergence of the life story in adolescence. *Psychological Bulletin*, *126*, 748-769. doi:10.1037/0033-2909.126.5.748

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?. *Behavioral and Brain Sciences*, *33*, 61-83. doi:10.1017/S0140525X0999152X

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression anxiety stress scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *44*, 227-239. doi:10.1348/014466505X2965

Illife, G., & Steed, L. G. (2000). Exploring the counselor's experience of working with perpetrators and survivors of domestic violence. *Journal of Interpersonal Violence*, *15*, 393-412. doi:10.1177/088626000015004004

Kaslow, N. J., & Thompson, M. P. (1998). Applying the criteria for empirically supported treatments to studies of psychosocial interventions for child and adolescent depression. *Journal of Clinical Child Psychology*, *27*, 146–155. doi:10.1207/s15374424jccp2702\_2

Kissin, W., McLeod, C. and McKay, J.2003. The longitudinal relationship between self-help group attendance and course of recovery. *Evaluation and Program Planning*, *26*, 311–323. doi: 10.1016/S0149-7189(03)00035-1

Kopelowicz, A., Liberman, R. P., & Zarate, R. (2006). Recent Advances in Social Skills Training for Schizophrenia. *Schizophrenia Bulletin*, *32*, S12–S23. doi:10.1093/schbul/sbl023

- Kuiper, N. A., & Derry, P. A. (1982). Depressed and nondepressed content self-reference in mild depressives. *Journal of personality*, 50, 67-80. doi: 10.1111/j.1467-6494.1982.tb00746.x
- Laurenceau, J. P., Barrett, L. F., & Pietromonaco, P. R. (1998). Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. *Journal of Personality and Social Psychology*, 74, 1238–1251. doi: 10.1037/0022-3514.74.5.1238
- Leichtman, M. D., Wang, Q., & Pillemer, D. B. (2003). Cultural variations in interdependence and autobiographical memory: Lessons from Korea, China, India, and the United States. In R. Fivush, C. A. Haden (Eds.), *Autobiographical memory and the construction of a narrative self: Developmental and cultural perspectives* (pp. 73-97). Mahwah, NJ: Lawrence Erlbaum Associates Publishers. Retrieved from <http://search.ebscohost.com.qe2a-proxy.mun.ca/login.aspx?direct=true&AuthType=ip,url,uid&db=psyh&AN=2003-02703-004&site=ehost-live&scope=site>
- Lind, M., & Thomsen, D. K. (2018). Functions of personal and vicarious life stories: identity and empathy. *Memory*, 26, 672-682. doi: 10.1080/09658211.2017.1395054
- Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales*. Sydney, Australia: Psychology Foundation.
- Luyckx, K., Goossens, L., & Soenens, B. (2006). A developmental contextual perspective on identity construction in emerging adulthood: Change dynamics in commitment



formation and commitment evaluation. *Developmental Psychology*, 42, 366–380.

doi: 10.1037/0012-1649.42.2.366

Luyckx, K., Schwartz, S. J., Berzonsky, M. D., Soenens, B., Vansteenkiste, M., Smits, I., & Goossens, L. (2008). Capturing ruminative exploration: Extending the four-dimensional model of identity formation in late adolescence. *Journal of Research in Personality*, 42, 58–82. doi: 10.1016/j.jrp.2007.04.004

Lysaker, P. H., & Lysaker, J. T. (2006). Psychotherapy and schizophrenia: An analysis of requirements of an individual psychotherapy for persons with profoundly disorganized selves. *Journal of Constructivist Psychology*, 19, 171–189. doi: 10.1080/10720530500508894

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality And Social Psychology*, 3, 551-558. doi:10.1037/h0023281

Marsh, E. J., & Roediger, H. I. (2013). *Episodic and autobiographical memory*. In A. F. Healy, R. W. Proctor, I. B. Weiner (Eds.), *Handbook of psychology: Experimental psychology*, Vol. 4, 2nd ed (pp. 472-494). Hoboken, NJ: John Wiley & Sons Inc.

Retrieved from

<http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,uid&db=psyh&AN=2012-28460-017&site=ehost-live&scope=site>

Markus, H. R., & Kitayama, S. (1998). The cultural psychology of personality. *Journal of Cross-Cultural Psychology*, 29, 63–87. doi: 10.1177/0022022198291004

McAdams, D. P. (1995). *The life story interview*. Evanston, IL: Northwestern University.

- McAdams, D. P. (2006). The Redemptive Self: Generativity and the Stories Americans Live by. *Research in Human Development, 3*, 81–100. doi: 10.1207/s15427617rhd0302&3\_2
- McCann, I. L., & Pearlman, L. A. (1990). Vicarious traumatization: A framework for understanding the psychological effects of working with victims. *Journal of Traumatic Stress, 3*, 131-149. doi:10.1007/BF00975140
- McAdams, D. P., Reynolds, J., Lewis, M., Patten, A. H., & Bowman, P. J. (2001). When bad things turn good and good things turn bad: Sequences of redemption and contamination in life narrative and their relation to psychosocial adaptation in midlife adults and in students. *Personality and Social Psychology Bulletin, 27*, 474–485. doi: 10.1177/0146167201274008
- McLean, K. C. (2016). *The co-authored self: Family stories and the construction of personal identity*. New York, NY: Oxford University Press.
- McLean, K. C., & Breen, A. V. (2015). Selves in a world of stories during emerging adulthood. In J. J. Arnett (Ed.), *The Oxford handbook of emerging adulthood*. (pp. 385–400). New York, NY: Oxford University Press.
- McLean, K. C., & Fournier, M. A. (2008). The content and processes of autobiographical reasoning in narrative identity. *Journal of Research in Personality, 42*, 527-545. doi:10.1016/j.jrp.2007.08.003
- McLean, K. C., Pasupathi, M., & Pals, J. L. (2007). Selves creating stories creating selves: A process model of self-development. *Personality and Social Psychology Review, 11*, 262-278. doi:10.1177/1088868307301034

- Merrill, N., & Fivush, R. (2016). Intergenerational narratives and identity across development. *Developmental Review, 4*, 72-92. doi:10.1016/j.dr.2016.03.001
- Merrill, N., Srinivas, E., & Fivush, R. (2017). Personal and intergenerational narratives of transgression and pride in emerging adulthood: Links to gender and well-being. *Applied Cognitive Psychology, 31*, 119-127. doi:10.1002/acp.3308
- Merrill, N., Waters, T. A., & Fivush, R. (2016). Connecting the self to traumatic and positive events: Links to identity and well-being. *Memory, 24*, 1321-1328. doi:10.1080/09658211.2015.1104358
- Miller, P. J., Wiley, A. R., Fung, H., & Liang, C. (1997). Personal storytelling as a medium of socialization in Chinese and American families. *Child Development, 68*, 557-568. doi:10.2307/1131678
- Mirzamani, M., & Bolton, D. (2003). Mothers' psychological adjustment following disaster affecting their children. *The Journal of Psychology: Interdisciplinary and Applied, 137*, 54-62. doi: 10.1080/00223980309600599
- Moos, R. H. and Moos, B. S. 2004. Long-term influence of duration and frequency of participation in Alcoholics Anonymous on individuals with alcohol use disorders. *Journal of Consulting and Clinical Psychology, 72*, 81-90. doi: 10.1037/0022-006X.72.1.81
- Moos, Rudolf H., & Moos, Bernice S. (2006). Participation in treatment and Alcoholics Anonymous: A 16-year follow-up of initially untreated individuals. *Journal of Clinical Psychology, 62*, 735-750. doi: 10.1002/jclp.20259

- Nelson, K., & Fivush, R. (2004). The Emergence of Autobiographical Memory: A Social Cultural Developmental Theory. *Psychological Review*, *111*, 486-511.  
doi:10.1037/0033-295X.111.2.486
- Olf, M., Langeland, W., Draijer, N., & Gersons, B. R. (2007). Gender differences in posttraumatic stress disorder. *Psychological Bulletin*, *133*, 183-204.  
doi:10.1037/0033-2909.133.2.183
- Panattoni, K., & Thomsen, D. K. (2018). My partner's stories: Relationships between personal and vicarious life stories within romantic couples. *Memory*,  
doi:10.1080/09658211.2018.1485947
- Pasupathi, M. (2001). The social construction of the personal past and its implications for adult development. *Psychological Bulletin*, *127*, 651–672. doi: 10.1037/0033-2909.127.5.651
- Pasupathi, M. (2003). Emotion regulation during social remembering: Differences between emotions elicited during an event and emotions elicited when talking about it. *Memory*, *11*, 151–163. doi: 10.1080/741938212
- Pasupathi, M., Mansour, E., & Brubaker, J. R. (2007). Developing a life story: Constructing relations between self and experience in autobiographical narratives. *Human Development*, *50*, 85-110. doi:10.1159/000100939
- Peterson, C., Baker-Ward, L., & Grovenstein, T. N. (2016). Childhood remembered: Reports of both unique and repeated events. *Memory*, *24*, 240-256.  
doi:10.1080/09658211.2014.1001991

Peterson, C., Hallett, D., & Compton, G. C. (2018). Childhood amnesia in children: A prospective study across eight years. *Child Development, 89*, e520–e534. doi: 10.1111/cdev.12972

Peterson, C., Morris, G., Baker-Ward, L., & Flynn, S. (2014). Predicting which childhood memories persist: Contributions of memory characteristics. *Developmental Psychology, 50*, 439–448. doi: 10.1037/a0033221

Peterson, C., & McCabe, A. (1996). Parental scaffolding of context in children's narratives. In C. E. Johnson & J. H. V. Gilbert (Eds.), *Children's language*, Vol. 9. (pp. 183–196). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Pillemer, D. B. (1998). *Momentous events, vivid memories*. Cambridge, MA: Harvard University Press. Retrieved from <https://ebookcentral.proquest.com/lib/mun/reader.action?docID=3300311&query=>

Pillemer, D. B. (2003). Directive functions of autobiographical memory: The guiding power of the specific episode. *Memory, 11*, 193–202. doi: 10.1080/741938208

Pillemer, D. B., Steiner, K. L., Kuwabara, K. J., Thomsen, D. K., & Svob, C. (2015). Vicarious memories. *Consciousness and Cognition, 36*, 233-245. doi:10.1016/j.concog.2015.06.010

Pistorius, K. D., Feinauer, L. L., Harper, J. M., Stahmann, R. F., & Miller, R. B. (2008). Working with sexually abused children. *American Journal of Family Therapy, 36*, 181-195. doi:10.1080/01926180701291204

Pratt, M. W., Norris, J. E., Hebblethwaite, S., & Arnold, M. L. (2008). Intergenerational transmission of values: Family generativity and adolescents' narratives of parent

- and grandparent value teaching. *Journal of Personality*, *76*, 171–198. doi: 10.1111/j.1467-6494.2007.00483.x
- Rasmussen, A. S., & Berntsen, D. (2009). Emotional valence and the functions of autobiographical memories: Positive and negative memories serve different functions. *Memory & Cognition*, *37*, 477–492. <https://doi-org.qe2a-proxy.mun.ca/10.3758/MC.37.4.477>
- Reese, E., & Fivush, R. (2008). The development of collective remembering. *Memory*, *16*, 201–212. doi:10.1080/09658210701806516
- Reese, E., Fivush, R., Merrill, N., Wang, Q., & McAnally, H. (2017). Adolescents' intergenerational narratives across cultures. *Developmental psychology*, *53*, 1142. doi: 10.1037/dev0000309
- Reese, E., Haden, C. A., & Fivush, R. (1993). Mother-child conversations about the past: Relationships of style and memory over time. *Cognitive Development*, *8*, 403–430. doi:10.1016/S0885-2014(05)80002-4
- Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. In S. Duck, D. F. Hay, S. E. Hobfoll, W. Ickes, & B. M. Montgomery (Eds.), *Handbook of personal relationships: Theory, research and interventions*. (pp. 367–389). Oxford: John Wiley & Sons. Retrieved from <http://depts.washington.edu/uwcscs/sites/default/files/Reis%20%26%20Shaver,%201988.pdf>
- Reisberg, D., & Hertel, P. (2004). *Memory and emotion*. (D. Reisberg & P. Hertel, Eds.). New York, NY: Oxford University Press. Retrieved from: <https://ebookcentral.proquest.com/lib/mun/reader.action?docID=279762>

- Roberts, W. A. (2002). Are animals stuck in time?. *Psychological Bulletin*, *128*, 473-489.  
doi:10.1037/0033-2909.128.3.473
- Robinson-Keilig, R. A. (2014). Secondary traumatic stress and disruptions to interpersonal functioning among mental health therapists. *Journal of Interpersonal Violence*, *29*, 1477-1496. doi:10.1177/0886260513507135
- Ross, M., & Wang, Q. (2010). Why we remember and what we remember: Culture and autobiographical memory. *Perspectives on Psychological Science*, *5*, 401-409.  
doi:10.1177/1745691610375555
- Rubin, D. C., & Umanath, S. (2015). Event memory: A theory of memory for laboratory, autobiographical, and fictional events. *Psychological Review*, *122*, 1–23.  
doi:10.1037/a0037907
- Sales, J. M., Fivush, R., & Peterson, C. (2003). Parental Reminiscing About Positive and Negative Events. *Journal of Cognition and Development*, *4*, 185–209. doi:  
10.1207/S15327647JCD0402\_03
- Satkunanayagam, K., Tunariu, A., & Tribe, R. (2010). A qualitative exploration of mental health professionals' experience of working with survivors of trauma in Sri Lanka. *International Journal of Culture and Mental Health*, *3*, 43-51.  
doi:10.1080/1754286100359333
- Schacter, D. L., Wagner, A. D., & Buckner, R. L. (2000). Memory systems of 1999. In E. Tulving & F. I. M. Craik (Eds.), *The Oxford handbook of memory*. (pp. 627–643). New York, NY: Oxford University Press.

- Scherman, A. Z., Salgao, S., Shao, Z. & Berntsen, D. (2015). Event centrality of positive and negative autobiographical memories to identity and life story across cultures. *Memory*, 23, 1152 – 1171. doi: 10.1080/09658211.2014.962997
- Schulkind, M., Schoppel, K., & Scheiderer, E. (2012). Gender differences in autobiographical narratives: He shoots and scores; she evaluates and interprets. *Memory & Cognition*, 40, 958-965. doi:10.3758/s13421-012-0197-1
- Seligman, M. E. P. (2002). Positive psychology, positive prevention, and positive therapy. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology*. (pp. 3–9). New York, NY: Oxford University Press.
- Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *Tidsskrift for Norsk Psykologforening*, 42, 874–884. doi: 10.1037/0003-066X.60.5.410
- Shamai, M., & Ron, P. (2009). Helping direct and indirect victims of national terror: Experiences of Israeli social workers. *Qualitative Health Research*, 19, 42-54. doi:10.1177/1049732308327350
- Shapiro, J. P. (2015). *Child and adolescent therapy: Science and art*. John Wiley & Sons.
- Spence, S. H. (2003). Social skills training with children and young people: Theory, evidence and practice. *Child and Adolescent Mental Health*, 8, 84–96. doi: 10.1111/1475-3588.00051
- Squire, L. R. (2004). Memory systems of the brain: A brief history and current perspective. *Neurobiology of Learning and Memory*, 82, 171–177. doi: 10.1016/j.nlm.2004.06.005



- Statistics Canada. 2017. *St. John's [Population centre], Newfoundland and Labrador and Newfoundland and Labrador [Province] (table). Census Profile. 2016 Census.* Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.
- Sumner, J. A., Griffith, J. W., & Mineka, S. (2010). Overgeneral autobiographical memory as a predictor of the course of depression: A meta-analysis. *Behaviour Research and Therapy, 48*, 614–625. doi: 10.1016/j.brat.2010.03.013
- Svob, C., & Brown, N. R. (2012). Intergenerational transmission of the reminiscence bump and biographical conflict knowledge. *Psychological Science, 23*, 1404-1409. doi:10.1177/0956797612445316
- Szabó, J., Tóth, S., & Pakai, A. K. (2014). Narrative group therapy for alcohol dependent patients. *International Journal of Mental Health and Addiction, 12*, 470–476. doi: 10.1007/s11469-014-9478-1
- Teasdale, J. D., & Russell, M. L. (1983). Differential effects of induced mood on the recall of positive, negative and neutral words. *British Journal of Clinical Psychology, 22*, 163–171. doi: 10.1111/j.2044-8260.1983.tb00597.x
- Taylor, A. C., Fisackerly, B. L., Mauren, E. R., & Taylor, K. D. (2013). “Grandma, tell me another story”: Family narratives and their impact on young adult development. *Marriage & Family Review, 49*, 367–390. doi: 10.1080/01494929.2012.762450
- Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review, 96*, 569–575. doi: 10.1037/0033-295X.96.4.569

- Tedeschi, R. G., Calhoun, L. G., & Cann, A. (2007). Evaluating resource gain: Understanding and misunderstanding posttraumatic growth. *Applied Psychology: An International Review*, *56*, 396-406. doi:10.1111/j.1464-0597.2007.00299.x.
- Thomsen, D. K. (2009). There is more to life stories than memories. *Memory*, *17*, 445-457. doi:10.1080/09658210902740878
- Thomsen, D. K., & Pillemer, D. B. (2017). I know my story and I know your story: Developing a conceptual framework for vicarious life stories. *Journal Of Personality*, *85*, 464-480. doi:10.1111/jopy.12253
- Tonigan, J. S., Bogenschutz, M. P. and Miller, W. R. 2006. Is alcoholism typology a predictor of both Alcoholics Anonymous affiliation and disaffiliation after treatment?. *Journal of Substance Abuse Treatment*, *30*, 323–330. doi: 10.1016/j.jsat.2006.02.008
- Tulving, E. (1972). Episodic and semantic memory. *In Tulving & Donaldson (Eds.), Organization of memory* (pp. 381-403). Oxford, England: Academic Press.
- Tulving, E. (1985). How many memory systems are there? *American Psychologist*, *40*, 385–398. doi: 10.1037/0003-066X.40.4.385
- Tulving, E. (2002). Episodic memory: From mind to brain. *Annual Review of Psychology*, *53*, 1–25. doi: 10.1146/annurev.psych.53.100901.135114
- Vaillant, G. E. 2005. Alcoholics Anonymous: Cult or cure?. *Australian and New Zealand Journal of Psychiatry*, *39*, 431–436. doi: 10.1111/j.1440-1614.2005.01600.x
- Walker, W. R., Skowronski, J. J., & Thompson, C. P. (2003). Life is pleasant--and memory helps to keep it that way!. *Review Of General Psychology*, *7*, 203-210. doi:10.1037/1089-2680.7.2.203

- Waters, T. A., Bauer, P. J., & Fivush, R. (2014). Autobiographical memory functions served by multiple event types. *Applied Cognitive Psychology, 28*, 185-195.  
doi:10.1002/acp.2976
- Watkins, P. C. (2002). Implicit memory bias in depression. *Cognition and Emotion, 16*, 381–402. doi: 10.1080/02699930143000536
- Wang, Q. (2013). *The autobiographical self in time and culture*. New York, NY: Oxford University Press. doi:10.1093/acprof:oso/9780199737833.001.0001
- Wang, Q., & Conway, M. A. (2004). The stories we keep: Autobiographical memory in American and Chinese middle-aged adults. *Journal of Personality, 72*, 911-938.  
doi:10.1111/j.0022-3506.2004.00285.x
- Wang, Q., Leichtman, M. D., & Davies, K. I. (2000). Sharing memories and telling stories: American and Chinese mothers and their 3-year-olds. *Memory, 8*, 159-178. doi:10.1080/096582100387588
- Wang, Q., & Ross, M. (2007). Culture and memory. In S. Kitayama, D. Cohen (Eds.). *Handbook of cultural psychology* (pp. 645-667). New York, NY: Guilford Press. Retrieved from  
<https://ebookcentral.proquest.com/lib/mun/reader.action?docID=320578>
- Weissman, M. M., & Klerman, G. L. (1977). Sex differences and the epidemiology of depression. *Archives of General Psychiatry, 34*, 98-111.  
doi:10.1001/archpsyc.1977.01770130100011
- White, M., & Epston, D. (1990). *Narrative means to therapeutic ends*. New York: W. W. Norton.

- Williams, J. M. G., Barnhofer, T., Crane, C., Herman, D., Raes, F., Watkins, E., & Dalgleish, T. (2007). Autobiographical memory specificity and emotional disorder. *Psychological Bulletin, 133*, 122–148. doi: 10.1037/0033-2909.133.1.122
- Williams, J. M. G., & Broadbent, K. (1986). Autobiographical memory in suicide attempters. *Journal of Abnormal Psychology, 95*, 144–149. doi:10.1037/0021-843X.95.2.144
- Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., ... Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders, 45*, 1951–1966. doi: 10.1007/s10803-014-2351-z
- Zaman, W., & Fivush, R. (2011). When my mom was a little girl...: Gender differences in adolescents' intergenerational and personal stories. *Journal of Research on Adolescence, 21*, 703–716. doi:10.1111/j.1532-7795.2010.00709.x

Table 1

*Frequency of Relationship Type (Percentage) Between Participant and Vicarious Protagonist or the Individual to Whom the Participant First Disclosed the Personally Experienced Event*

	Parent	Other relative	Friend	Romantic partner	Other
Negative vicarious	42 (29.6%)	23 (16.2%)	52 (36.6%)	20 (14.1%)	5 (3.5%)
Positive vicarious	47 (33.1%)	37 (26.1%)	42 (29.6)	13 (9.2%)	2 (2.1%)
Negative personal <sup>a</sup>	35 (24.6%)	14 (9.9%)	61 (43.0%)	21 (14.8%)	9 (6.3%)
Positive personal <sup>b</sup>	49 (34.5%)	16 (11.3%)	53 (37.3%)	14 (9.9%)	7 (4.9%)

<sup>a</sup>Two participants were excluded due to ambiguous or unclear responses. <sup>b</sup> Three participants were excluded due to ambiguous or unclear responses

Table 2

*Frequency of Specific and Non-specific Memory Types Across Personal and Vicarious Memories*

Memory type	Specific memories (%)	Non-specific memories (%)
Vicarious negative	81 (57.0)	61 (43.0)
Vicarious positive	86 (60.6)	56 (39.4)
Personal negative	91 (64.1)	51 (35.9)
Personal positive	99 (69.7)	43 (30.3)

*Note.* Non-specific memories refer to both extended and repeated memory types

Table 3

*Personal Memory Descriptives Means (Standard Deviations)*

Memory valence	Memory variable	Men	Women	Overall mean
Negative	Age during event	13.52 (5.57)	15.95 (5.46)	15.25 (5.58)
	Years since event	8.32 (5.98)	5.49 (5.27)	6.31 (5.61)
	Age of first disclosure	15.00 (5.71)	16.89 (4.70)	16.35 (5.07)
	Closeness of relationship with person who first heard the narrative	4.32 (0.85)	4.54 (0.88)	4.48 (0.92)
Positive	Age during event	17.46 (5.01)	17.05 (4.65)	17.17 (4.74)
	Years since event	4.38 (3.89)	4.39 (4.57)	4.39 (4.37)
	Age of first disclosure	17.82 (4.69)	17.50 (4.47)	17.59 (4.52)
	Closeness of relationship with person who first heard the narrative	4.35 (1.17)	4.57 (0.90)	4.51 (0.99)

Table 4

*Vicarious Memory Descriptives Means (Standard Deviations)*

Memory valence	Memory variable	Men	Women	Overall mean
Negative	Age when first heard narrative	16.95 (5.45)	16.67 (4.80)	16.75 (4.98)
	Years since first hearing the narrative	4.896 (4.330)	4.771 (4.770)	4.807 (4.633)
	Age of other person during event	21.21 (13.52)	22.05 (12.78)	21.81 (12.95)
	Closeness of relationship with person who experienced the event	4.32 (0.93)	4.69 (0.60)	4.59 (0.73)
Positive	Age when first heard narrative	15.52 (6.31)	16.73 (5.82)	16.38 (5.97)
	Years since first hearing the narrative	6.32 (6.71)	4.72 (5.40)	5.19 (5.83)
	Age of other person during event	26.31 (13.74)	23.89 (11.88)	24.59 (12.45)
	Closeness of relationship with person who experienced the event	4.22 (0.99)	4.60 (0.69)	4.49 (0.81)



Table 5

*Word Count Means (Standard Deviations) for Each Memory Type*

Narrative type	Men	Women	Overall mean
Negative vicarious	261.30 (141.67)	365.49 (224.12)	334.15 (207.89)
Positive vicarious	302.30 (153.74)	308.61 (154.79)	306.71 (153.87)
Negative personal	378.11 (227.00)	405.74 (284.36)	397.43 (267.78)
Positive personal	393.97 (201.14)	394.71 (242.80)	394.49 (230.24)

Table 6

*Self-Event Connection Valence Means (Standard Deviations) for Each Memory Type*

Self-event connection type	Men	Women	Overall mean
Negative vicarious narrative			
Negative self-event connections	0.49 (0.93)	0.61 (1.06)	0.57 (1.02)
Positive self-event connections	1.02 (1.19)	1.33 (1.21)	1.30 (1.02)
Positive vicarious narrative			
Positive self-event connections	1.10 (1.02)	1.39 (1.01)	1.30 (1.02)
Negative self-event connections	.17 (0.38)	0.07 (0.26)	0.099 (0.30)
Negative personal narrative			
Negative self-event connections	.63 (0.86)	1.06 (1.23)	0.94 (1.15)
Positive self-event connections	1.171 (1.26)	1.406 (1.36)	1.34 (1.33)
Positive personal narrative			
Positive self-event connections	1.95 (1.36)	1.90 (1.18)	1.92 (1.23)
Negative self-event connections	.049 (0.22)	0.16 (.418)	0.13 (0.37)

Table 7

*Self-Event Connection Category Means (Standard Deviations)*

Category	Men	Women	Overall mean
Dispositions	0.61 (0.83)	1.13 (1.57)	0.98 (1.41)
Values	1.68 (2.12)	1.59 (1.62)	1.62 (1.77)
Outlook	2.83 (1.99)	2.77 (1.82)	2.79 (1.86)
Self-esteem	0.22 (0.48)	0.13 (0.37)	0.16 (0.40)
Personal growth	1.63 (1.22)	1.79 (1.26)	1.75 (1.25)
Intimacy	1.24 (1.53)	2.03 (1.47)	1.80 (1.53)
Interpersonal	0.17 (0.38)	0.19 (0.46)	0.18 (0.44)

Table 8

*Clinical Measures Means (Standard Deviations) Compared Between Gender*

Measures	Men	Women	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Psychological Distress	29.95 (21.33)	39.92 (24.37)	-2.29	.024	0.47
Depression (DASS-21)	9.71 (10.31)	10.36 (8.76)	-.38	.705	
Anxiety (DASS-21)	7.56 (6.75)	12.12 (9.48)	-3.28	.001	0.53
Stress (DASS-21)	12.68 (8.93)	17.37 (9.53)	-2.70	.008	0.50
Identity Commitment (EIPQ)	57.20 (11.16)	60.41 (9.64)	-1.72	.088	
Identity Exploration (EIPQ)	66.56 (8.89)	66.32 (9.39)	0.14	.887	
Identity Distress (IDS)	2.46 (1.12)	3.04 (0.88)	-2.94	.005	0.60

Table 9

*Memory Variable Means (Standard Deviations) (Range 1 to 5)*

Variable	Negative vicarious	Positive vicarious	Negative personal	Positive personal
Function1	2.74 (1.31)	2.46 (1.38)	3.44 (1.39)	2.71 (1.32)
Function2	2.35 (1.19)	2.06 (1.14)	2.76 (1.30)	2.47 (1.26)
Function3	2.71 (1.22)	2.40 (1.30)	3.50 (1.32)	2.92 (1.28)
Centrality1	2.00 (1.08)	2.07 (1.25)	3.41 (1.35)	3.55 (1.21)
Centrality2	2.44 (1.12)	2.20 (1.19)	3.27 (1.28)	2.91 (1.25)
Centrality3	1.78 (1.00)	1.97 (1.21)	2.99 (1.37)	3.27 (1.31)
Centrality4	2.89 (1.18)	2.66 (1.26)	3.36 (1.27)	3.23 (1.09)
Vividness	3.12 (0.99)	3.11 (0.97)	4.16 (0.91)	4.21 (0.86)
Positive emotional saturation	1.18 (0.50)	4.66 (0.63)	1.26 (0.64)	4.85 (0.40)
Negative emotional saturation	4.61 (0.67)	1.23 (0.66)	4.43 (0.84)	1.15 (0.41)
Biographical importance <sup>a</sup>	3.84 (1.74)	3.76 (1.97)	5.30 (1.61)	5.88 (1.26)
Likelihood of telling (future) children <sup>a</sup>	3.61 (1.97)	4.42 (2.11)	4.78 (2.02)	5.78 (1.61)

*Note.* Function1 = Memory influences my relationships with others; Function2 = Memory helps me solve problems in my life; Function3 = Memory impacts my life decisions; Centrality1 = Memory has become a part of my identity; Centrality2 = Memory has become a reference point for the way I understand myself and the world; Centrality3 = Memory has become central to my life story; Centrality4 = Memory colours the way I think and feel about other experiences.

<sup>a</sup> These variables are rated on a scale of 1 to 7

Table 10

*Preliminary MANOVA for Memory Qualities*

	Wilks' $\Lambda$	<i>F</i>	<i>df</i>	<i>Df</i> error	<i>p</i>	partial $\eta^2$
Between subjects						
Memory Order	.75	3.45	12	127	< .001	.25
Gender	.90	1.13	12	127	.339	.10
Memory Order $\times$ Gender	.94	0.74	12	127	.709	.07
Within subjects						
Memory Type	.26	30.39	12	127	< .001	.74
Memory Type $\times$ Memory Order	.85	1.92	12	127	.038	.15
Memory Type $\times$ Gender	.93	0.82	12	127	.626	.07
Memory Type $\times$ Order $\times$ Gender	.91	1.00	12	127	.457	.09
Memory Valence	.03	386.71	12	127	< .001	.97
Memory Valence $\times$ Memory Order	.91	1.01	12	127	.448	.09
Memory Valence $\times$ Gender	.92	0.96	12	127	.487	.08
Memory Valence $\times$ Memory Order $\times$ Gender	.91	1.02	12	127	.435	.09
Memory Type $\times$ Memory Valence	.83	2.22	12	127	.014	.17
Memory Type $\times$ Memory Valence $\times$ Order	.86	1.70	12	127	.073	.14
Memory Type $\times$ Memory Valence $\times$ Gender	.94	0.72	12	127	.731	.06
Memory Type $\times$ Memory Valence $\times$ Order $\times$ Gender	.91	1.05	12	127	.406	.09

Table 11

*Main MANOVA for Memory Qualities*

	Wilks' $\Lambda$	$F$	$df$	$Df$ error	$p$	partial $\eta^2$
Between subjects						
Order	.76	3.36	12	129	< .001	.24
Within subjects						
Memory Type	.23	35.37	12	127	< .001	.77
Memory Type $\times$ Order	.82	2.30	12	129	.011	.18
Memory Valence	.02	469.19	12	129	< .001	.98
Memory Valence $\times$ Order	.92	1.00	12	129	.456	.09
Memory Type $\times$ Memory Valence	.82	2.44	12	129	.007	.19
Memory Type $\times$ Memory Valence $\times$ Order	.83	2.42	12	129	.013	.17

Table 12

*Significant Simple Main Effects for Memory Qualities: Estimated Marginal Means (EMM)*

Order	Main effect	Dependent variable	Independent variable	EMM	Std. error
Personal first	Memory type	ChildSig. <sup>a</sup>	Personal	5.31	0.11
			Vicarious	3.52	0.17
		Vividness	Personal	5.15	0.14
			Vicarious	3.65	0.19
		Centrality1	Personal	3.19	0.12
			Vicarious	1.83	0.10
		Centrality2	Personal	3.00	0.12
			Vicarious	2.16	0.10
	Centrality3	Personal	2.84	0.12	
		Vicarious	1.72	0.10	
	Centrality4	Personal	3.01	0.11	
		Vicarious	2.55	0.12	
	Memory valence	ChildSig. <sup>a</sup>	Negative	3.99	0.17
			Positive	4.81	0.17
Centrality2		Negative	2.78	0.11	
		Positive	2.38	0.11	
Vicarious first	Memory type	BioSig. <sup>a</sup>	Personal	5.89	0.14
			Vicarious	4.09	0.17
		ChildSig. <sup>a</sup>	Personal	5.41	0.17
			Vicarious	4.38	0.17
		Centrality1	Personal	3.78	0.12
			Vicarious	2.25	0.11
		Centrality2	Personal	3.18	0.11
			Vicarious	2.49	0.11
	Centrality3	Personal	3.42	0.12	
		Vicarious	2.04	0.11	
	Centrality4	Personal	3.58	0.09	
		Vicarious	3.01	0.12	
	Memory valence	Child Sig. <sup>a</sup>	Negative	4.40	0.16
			Positive	5.39	0.17

*Note.* Centrality1 = Memory has become a part of my identity; Centrality2 = Memory has become a reference point for the way I understand myself and the world; Centrality3 = Memory has become central to my life story; Centrality4 = Memory colours the way I think and feel about other experiences.

<sup>a</sup> Variables are rated on a scale of 1 to 7, not 1 to 5



Table 13

*Word Counts Summary*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	partial $\eta^2$
Between subjects						
Gender	132368.45	1	132368.45	1.12	.292	.01
Order	15915.92	1	15915.92	0.14	.714	< .01
Gender $\times$ Order	210.41	1	210.41	< 0.01	.966	< .01
Error	14044021.74	119	118016.99			
Within subjects						
Memory Type	784303.37	1	784303.37	26.84	< .001	.18
Memory Type $\times$ Gender	21779.84	1	21779.84	0.75	.390	.01
Memory Type $\times$ Order	315157.86	1	315157.86	10.78	.001	.08
Memory Type $\times$ Gender $\times$ Order	79783.27	1	79783.27	2.73	.101	.02
Error (Memory Type)	3477890.02	119	29225.97			
Valence	40.79	1	40.79	< 0.01	.966	< .01
Valence $\times$ Gender	103828.83	1	103828.83	4.55	.035	.04
Valence $\times$ Order	11212.92	1	11212.92	0.49	.485	< .01
Valence $\times$ Gender $\times$ Order	56548.96	1	56548.96	2.48	.118	.02
Error (Valence)	2717435.98	119	22835.60			
Memory Type $\times$ Valence	1838.91	1	1838.91	0.11	.743	< .01
Memory Type $\times$ Valence $\times$ Gender	22296.12	1	22296.12	1.31	.254	.01
Memory Type $\times$ Valence $\times$ Order	90308.67	1	90308.67	5.31	.023	.04
Memory Type $\times$ Valence $\times$ Gender $\times$ Order	1878.79	1	1878.79	0.11	.740	< .01
Error (Memory Type $\times$ Valence)	2023237.03	119	17001.99			

Table 14

*Self-Event Connection Analysis of Variance Summary*

	SS	df	MS	F	p	partial $\eta^2$
Between subjects						
Gender	6.50	1	6.50	3.19	.076	.02
Error (Gender)	284.92	140	2.04			
Within subjects						
Memory Type	18.90	1	18.90	19.59	< .001	.12
Memory Type $\times$ Gender	0.04	1	0.04	0.05	.831	< .01
Error (Memory Type)	120.79	140	0.86			
Memory Valence	3.22	1	3.22	3.54	.062	.03
Memory Valence $\times$ Gender	2.59	1	2.59	2.85	.094	.02
Error (Memory Valence)	127.21	140	0.91			
Self-Event Connection Valence	235.70	1	235.70	175.09	< .001	.56
Self-Event Connection Valence $\times$ Gender	0.20	1	0.20	0.15	.698	< .01
Error (Self-Event Connection Valence)	188.46	140	1.35			
Memory Type $\times$ Memory Valence	.98	1	0.98	1.47	.227	.01
Memory Type $\times$ Memory Valence $\times$ Gender	0.47	1	0.47	0.71	.401	< .01
Error (Memory Type $\times$ Memory Valence)	93.18	140	0.67			
Memory Type $\times$ Self- Event Connection Valence	3.76	1	3.76	4.88	.029	.03
Memory Type $\times$ Self- Event Connection Valence $\times$ Gender	3.19	1	3.19	4.15	.044	.03

Error (Memory Type × Self-Event Connection Valence)	107.85	140	0.77			
Memory Valence × Self- Event Connection Valence	50.89	1	50.89	54.62	< .001	.28
Memory Valence × Self- Event Connection Valence × Gender	0.18	1	0.18	0.20	.658	< .01
Error (Memory Valence × Self-Event Connection Valence)	130.44	140	0.93			
Memory Type × Memory Valence × Self- Event Connection Valence	11.65	1	11.65	14.24	< .001	.09
Memory Type × Memory Valence × Self- Event Connection Valence × Gender	0.10	1	0.10	0.12	.730	< .01
Error (Memory Type × Memory Valence × Self- Event Connection Valence)	114.55	140	0.82			

---

Table 15

*Women's Correlations Between Self-Event Connection (SEC) Frequency and Memory Centrality*

Memory type	SEC valence	Central1	Central2	Central3	Central4	Overall centrality
Personal memory	NE positive connections	.17	.26**	.17	.03	.19
	NE negative connections	.12	.05	.14	.09	.12
	PE positive connections	.21*	.19	.22*	.29**	.34***
	PE negative connections	.21*	.19	.22*	.29**	.28**
Vicarious memory	Ne positive connections	.16	.11	.09	.17	.17
	NE negative connections	.14	.20	.14	.07	.17
	PE positive connections	.26**	.29**	.33**	.34**	.36***
	PE negative connections	.24*	.12	.22*	.16	.22*

*Note.* NE = Negative event, PE = Positive event. Central1 = *Memory has become a part of my identity*; Central2 = *Memory has become a reference point for the way I understand myself and the world*; Central3 = *Memory has become central to my life story*; Central4 = *Memory colours the way I think and feel about other experiences*.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 16

*Men's Correlations Between Self-Event Connection (SEC) Frequency and Memory Centrality*

Memory type	SEC valence	Central1	Central2	Central3	Central4	Overall centrality
Personal memory	NE positive connections	.26	.30	.47**	.41**	.45**
	NE negative connections	-.06	.12	.14	.03	.07
	PE positive connections	.25	.12	.19	.05	.19
	PE negative connections	.19	.09	.06	-.05	.09
Vicarious memory	NE positive connections	.22	.22	.27	.36*	.33*
	NE negative connections	.24	.22	.24	.18	.27
	PE positive connections	.34*	.52***	.35*	.50**	.48**
	PE negative connections	< .01	.20	.07	.02	.08

*Note.* NE = Negative event, PE = Positive event. Central1 = *Memory has become a part of my identity*; Central2 = *Memory has become a reference point for the way I understand myself and the world*; Central3 = *Memory has become central to my life story*; Central4 = *Memory colours the way I think and feel about other experiences*.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 17

*Correlations Between Overall Memory Centrality and Psychological Distress*

Memory type	Men DASS-21	Women DASS-21
Negative vicarious memory report	.34*	.23*
Positive vicarious memory report	.26	.11
Negative personal memory report	.10	0.02
Positive personal memory report	-.14	-.04

*Note.* DASS-21 = Overall score on the Depression Anxiety Stress Scale, representing psychological distress.

\*  $p < .05$ .

Table 18

*Women's Correlations Between Clinical Measures and Self-Event Connection (SEC) Frequency*

Memory type	SEC valence	Depression	Anxiety	Stress	Psychological distress
Personal memory	NE positive connections	-.14	-.15	-.11	-.15
	NE negative connections	.08	-.02	-.04	.01
	PE positive connections	.09	-.07	-.06	-.02
	PE negative connections	.02	-.08	-.06	-.05
Vicarious memory	NE positive connections	-.08	-.11	-.04	-.09
	NE negative connections	< .01	.04	.08	.05
	PE positive connections	.10	-.09	.04	.02
	PE negative connections	-.11	-.11	-.07	-.11

*Note.* NE = Negative event, PE = Positive event

\* $p < .05$ .

Table 19

*Men's Correlations Between Clinical Measures and Self-Event Connection (SEC) Frequency*

Memory type	SEC valence	Depression	Anxiety	Stress	Psychological distress
Personal memory	NE positive connections	-.20	-.28	-.14	-.25
	NE negative connections	.06	.05	.07	.07
	PE positive connections	-.08	-.23	-.10	-.15
	PE negative connections	-.11	-.02	-.10	-.10
Vicarious memory	NE positive connections	-.07	.08	-.01	-.01
	NE negative connections	.06	-.17	.26	.08
	PE positive connections	-.04	.03	-.03	-.02
	PE negative connections	.23	.05	.27	.24

*Note.* NE = Negative event, PE = Positive event

\* $p < .05$



Table 20

*Women's Correlations Between Identity Measures and Self-Event Connection (SEC) Frequency*

Memory type	SEC valence	Identity Distress	Identity Exploration	Identity Commitment
Personal memory	NE positive connections	.05	.15	.05
	NE negative connections	.13	.11	.01
	PE positive connections	.13	-.01	-.05
	PE negative connections	.04	-.04	.10
Vicarious memory	NE positive connections	-.06	-.03	.18
	NE negative connections	.16	.03	.13
	PE positive connections	.07	-.01	-.01
	PE negative connections	-.06	.11	.12

*Note.* NE = Negative event, PE = Positive event.

\*No correlations significant at the  $p < .05$  level

Table 21

*Men's Correlations Between Identity Measures and Self-Event Connection (SEC) Frequency*

Memory type	SEC valence	Identity Distress	Identity Exploration	Identity Commitment
Personal memory	NE positive connections	-.20	.07	-.12
	NE negative connections	.05	.03	-.17
	PE positive connections	-.31*	.08	.01
	PE negative connections	-.10	.02	-.17
Vicarious memory	NE positive connections	-.10	-.03	-.08
	NE negative connections	-.03	-.17	-.11
	PE positive connections	-.30	.18	-.06
	PE negative connections	.10	.22	-.34*

*Note.* NE = Negative event, PE = Positive event.

\* $p < .05$

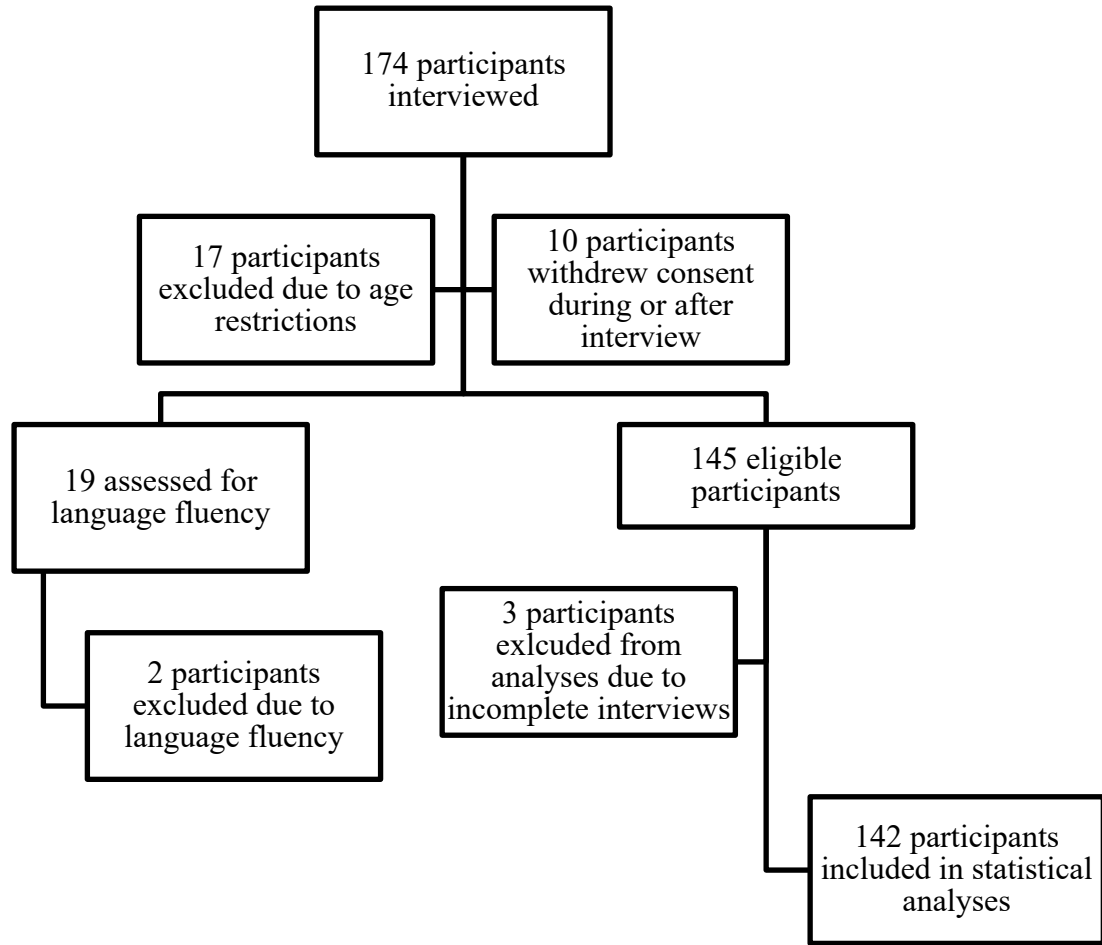


Figure 1. Participant Flow Chart Through the Recruitment, Interviewing and Analyses Process

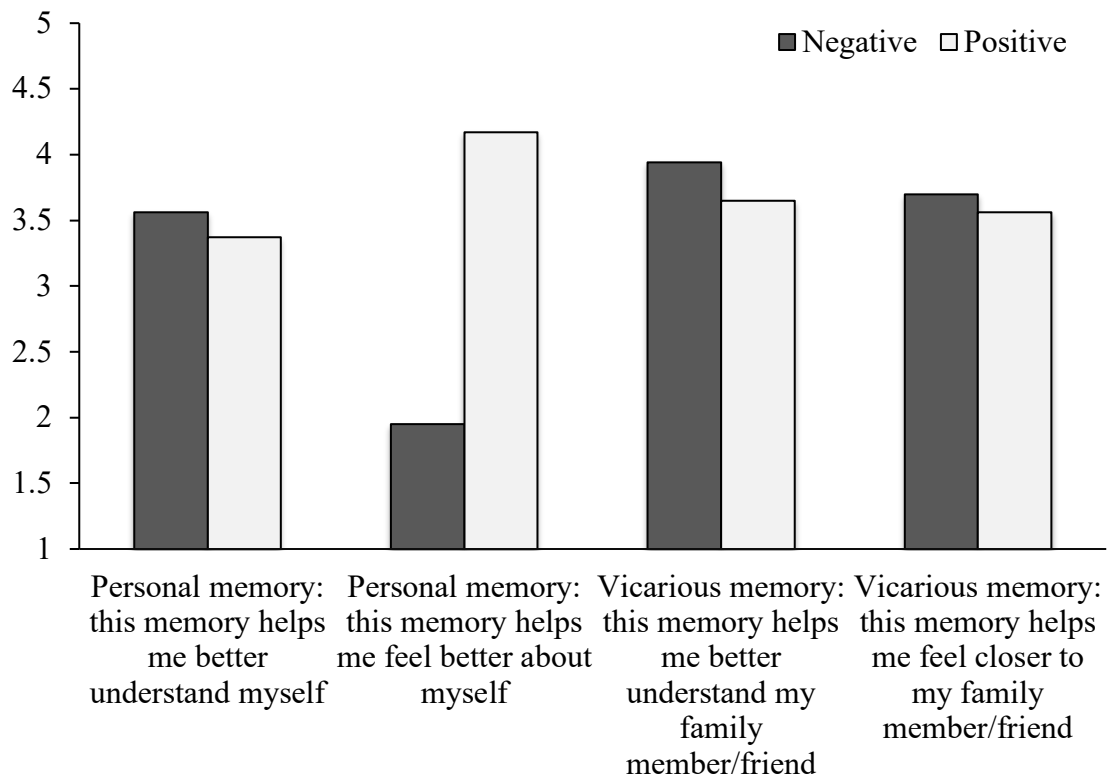
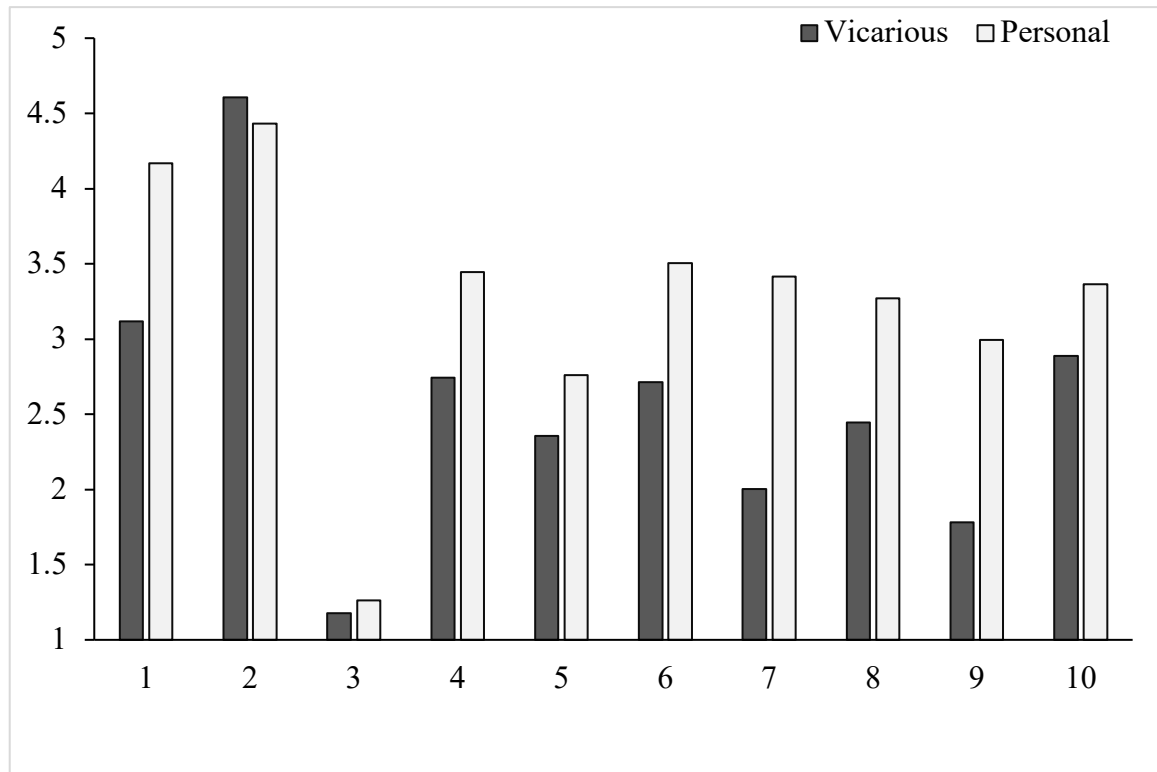
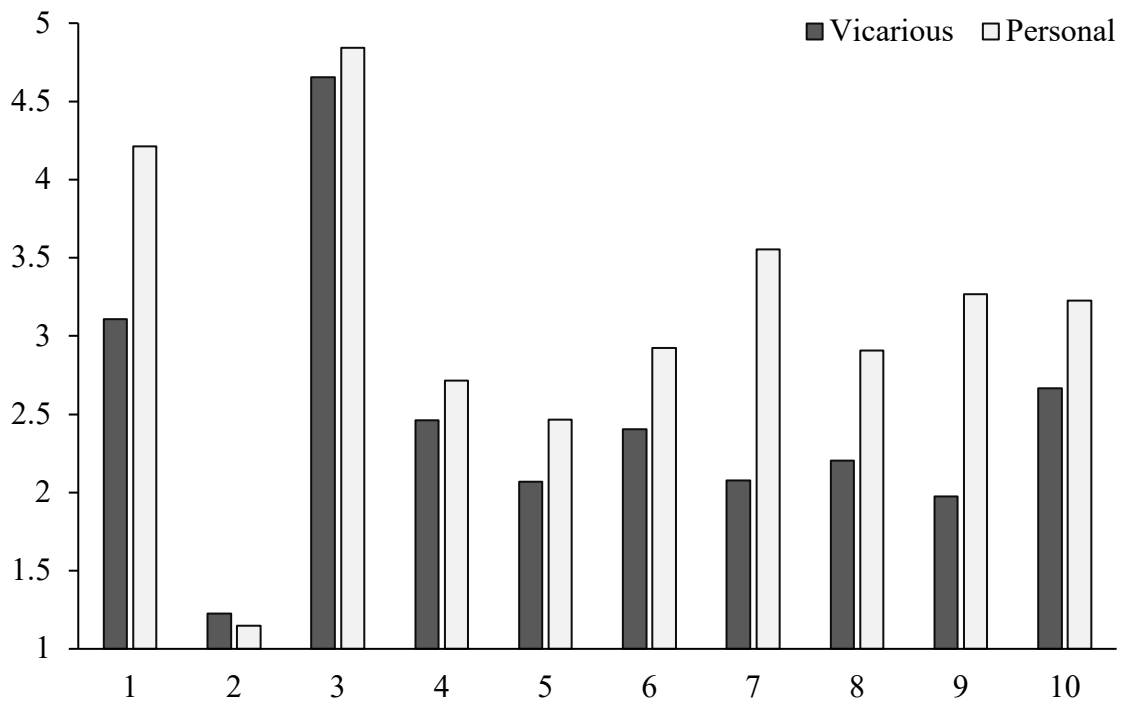


Figure 2. Bar Graph of Memory Functions Unique to Vicarious or Personal Memory Reports



*Figure 3. Bar Graph of Memory Quality Ratings for Negative Memory Reports. 1 = Vividness, 2 = Emotional Saturation (negative), 3 = Emotional Saturation (positive), 4 = Memory influences my relationships with others, 5 = Memory helps me solve problems in my life, 6 = Memory impacts my life decisions, 7 = Memory has become a part of my identity, 8 = Memory has become a reference point for the way I understand myself and the world, 9 = Memory has become central to my life story, 10 = Memory colours the way I think and feel about other experiences.*



*Figure 4. Bar Graph of Memory Quality Ratings for Positive Memory Reports. 1 = Vividness, 2 = Emotional Saturation (negative), 3 = Emotional Saturation (positive), 4 = Memory influences my relationships with others, 5 = Memory helps me solve problems in my life, 6 = Memory impacts my life decisions, 7 = Memory has become a part of my identity, 8 = Memory has become a reference point for the way I understand myself and the world, 9 = Memory has become central to my life story, 10 = Memory colours the way I think and feel about other experiences.*

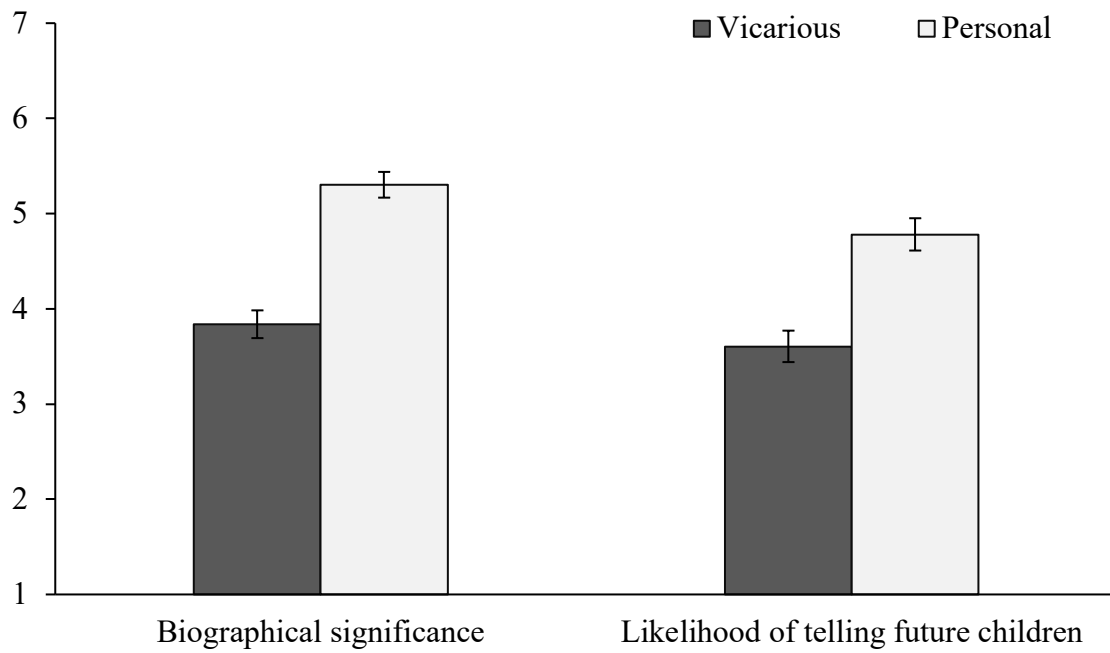


Figure 5. Bar Graph of Memory Significance Ratings for Negative Memory Reports

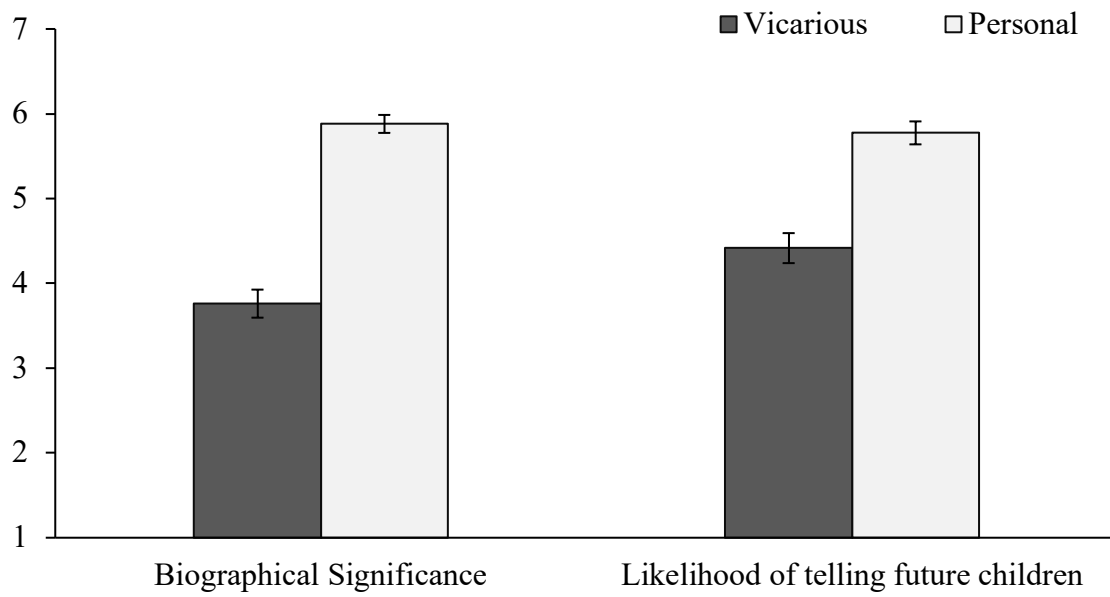
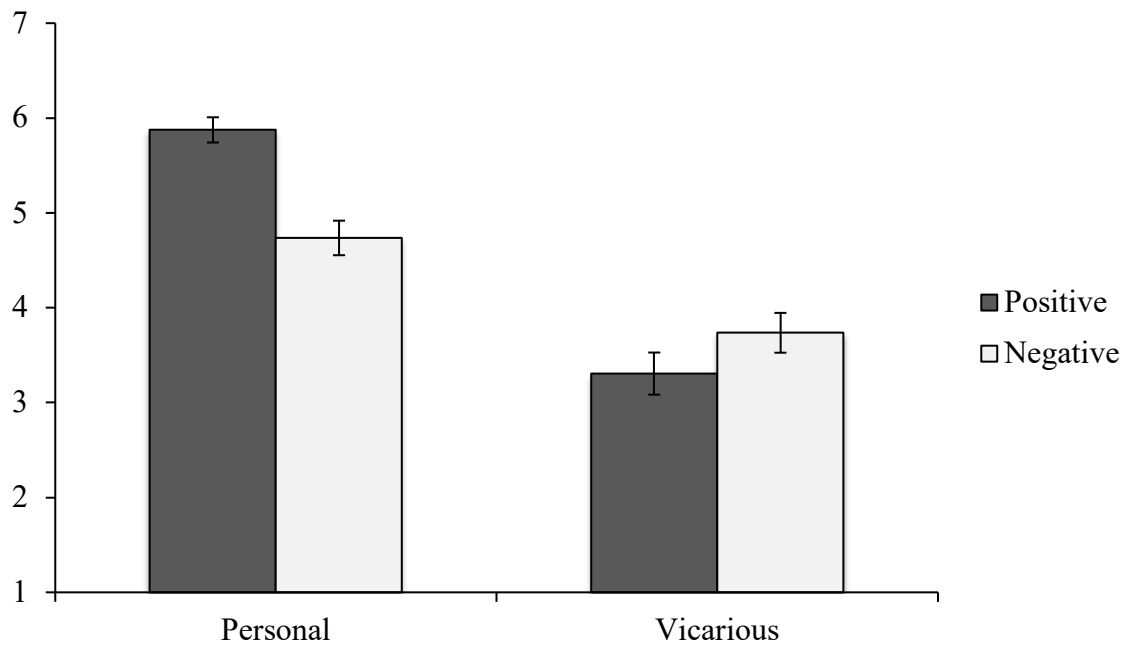
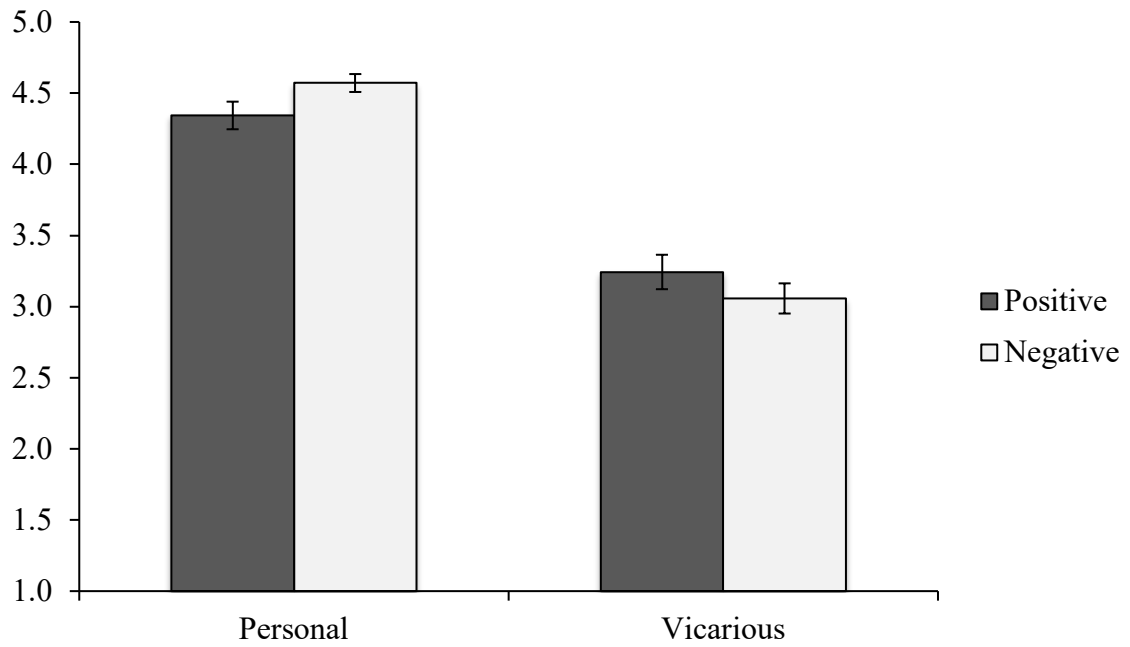


Figure 6. Bar Graph of Memory Significance Ratings for Positive Memory Reports





*Figure 7.* Simple Simple Main Effects for Memory Type on Biographical Significance within Positive and Negative Memories (Personal Memories First)



*Figure 8.* Simple Simple Main Effects for Memory Type on Vividness within Positive and Negative Memories (Vicarious First)

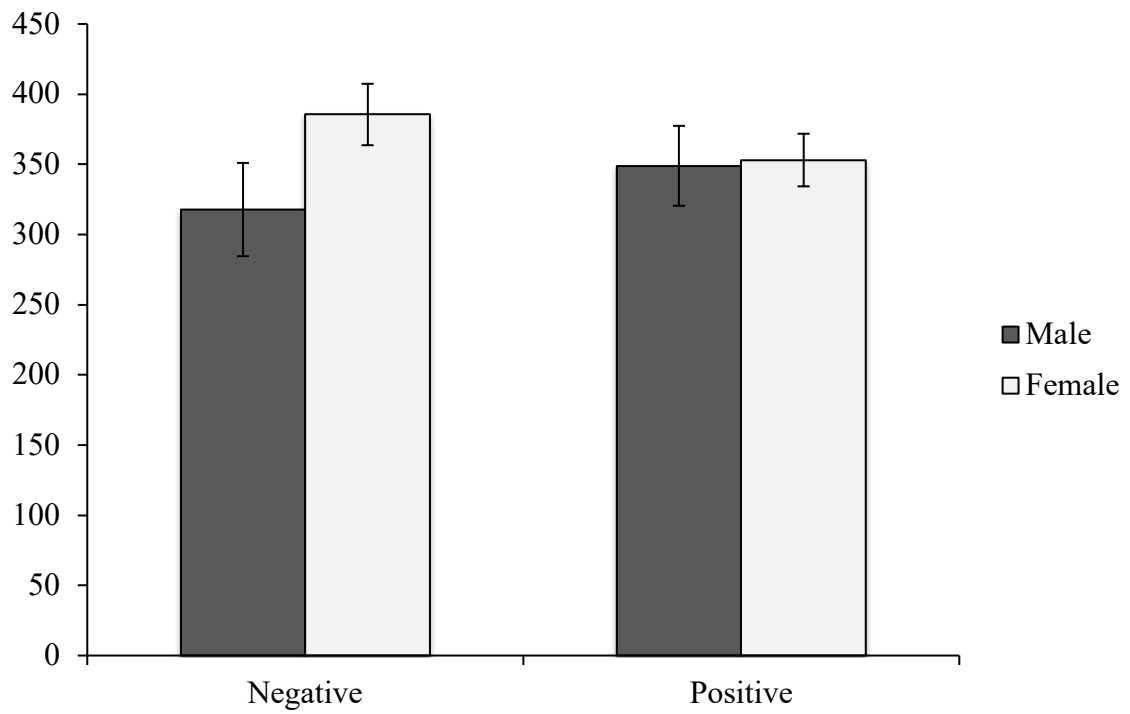


Figure 9. Significant Two-way Interaction Memory Valence × Gender for Word Counts

**Appendices**

Appendix A  
Detailed Language Questions

ID # \_\_\_\_\_

**Did the interview go on *longer* than 60 minutes?**

No

Yes

If yes, how long was the interview? \_\_\_\_\_

**Complete the following section if the participant spoke *less than 75% English* before starting school (as indicated by the demographic questionnaire)**

1) Review the sheets to determine...

How old was the participant for the negative personal memory? \_\_\_\_\_

How old was the participant for the positive personal memory? \_\_\_\_\_

How old was the participant when they first heard the negative vicarious memory? (as indicated by the follow-up questions sheet for the neg. vicarious memory) \_\_\_\_\_

How old was the participant when they first heard the positive vicarious memory? (as indicated by the follow-up questions sheet for the pos. vicarious memory) \_\_\_\_\_

2) Ask the participant how old they were for their earliest memory described above (Describe the memory of interest)

Age: \_\_\_\_\_

3) Ask the participant whether they were fluent in English at the age from #2.

Yes

No

If no, ask when the participant became fluent in English. Age: \_\_\_\_\_

Appendix B  
Language Fluency Assessment

**Assessing Language Fluency of Participants**

ID# \_\_\_\_\_

Completed by: \_\_\_\_\_

Note: Ensure you are listening to a **positive personal** memory

1. Is this participant fluent in their use of the English language? Do they readily supply vocabulary? (Are there few hesitations in speech and little difficulty coming up with words to use?)?

Yes    No    Uncertain

2. Does the participant provide many elaborations for the memory? (Are there many details provided?)

Yes    No    Uncertain

3. Is this participant making complex grammatical sentences (No major grammatical errors)?

- Example of grammatical errors: misuse of articles (ex. The, an)
- Mix-ups of countable words: (Much, many, few less etc. )
- Poor subject-verb agreement (Ex. He have money.)
- Mix-up of prepositions (Ex. On, at in)
- Other

Yes    No    Uncertain

4. Do the sentences make sense semantically? (Do their sentences make sense? Are the sentences meaningful?)

Yes    No    Uncertain

5. Overall, do you think the participant should be included based on language fluency?

Yes    No    Uncertain

Comments (if any):

---

---



Appendix D  
Recruitment E-mail

Hello \_\_\_\_\_,

My name is Emily Pond, I am a student in the Psychology Department at Memorial University of Newfoundland. I'm contacting you because earlier this year you indicated that you were willing to be contacted by researchers, and I am looking for participants for my study. I am conducting a research project called *Vicarious and Autobiographical Memory: Exploring Associations with Mood and Identity*, as part of my Psy.D. degree under the supervision of Dr. Carole Peterson. The purpose of this study is to compare vicarious memories (memories that individuals have in reference to events that they have not experienced but simply heard about from another person) and autobiographical memories (memories of personally experienced events). We are also looking at how these types of memories are related to identity development and psychological distress.

I am contacting you to invite you to participate in an interview in which you will be asked to recall memories and complete three brief questionnaires regarding identity development and current symptoms of psychological distress. Using a 21-item questionnaire, we will assess symptoms of depression, anxiety and stress. We will assess identity development using two brief questionnaires, one of which will assess identity distress (distress associated with unresolved identity issues). The second measure will assess identity growth, asking questions regarding identity exploration (the examination and questioning of potential identities that one may choose to adopt) and identity commitment (identity related choices that one has made in his/her life.) Participation will require approximately 60 minutes of your time and will occur on campus, in SN3092F. By participating in my study you are entered in a draw for a chance to win a **\$200 gift card** for the Avalon Mall.

If you are interested in participating in this study, please contact me to arrange an interview. We typically have participants at the following times:

Mondays 10:00  
Mondays 1:00  
Mondays 2:30  
Mondays 4:00  
Wednesdays 1:30  
Thursdays 9:00  
Thursdays 10:30  
Fridays 1:30

However, interview times are flexible to accommodate your schedule. If none of these times work for you please let me know and we can work something out.



If you have any questions about my project, or me, please contact me by email at [esp831@mun.ca](mailto:esp831@mun.ca).

Thank-you in advance for considering my request,  
Emily Pond

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as your rights as a participant, you may contact the Chairperson of the ICEHR at [icehr.chair@mun.ca](mailto:icehr.chair@mun.ca) or by telephone at [709-864-2861](tel:709-864-2861).

Appendix E  
Consent to be Entered into Gift Card Draw

**Consent to be Entered into Gift Card Draw**

I hereby give my permission to be entered into a draw for a \$200 gift card for the Avalon Mall in St. John's, Newfoundland. I understand that by signing this consent form, I am also giving my permission for this consent form, which contains my name and telephone number, to be stored in a secure location separately from my responses to this study's interviews and questionnaires. I also give my permission to be contacted by telephone if I am the winner of this draw.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Signature of participant      Name printed      Year / Month / Day

Telephone number: \_\_\_\_\_

Appendix F  
Detailed Memory Task

ID # \_\_\_\_\_

**Vicarious Memory (Negative):**

In personal relationships, people often share memories of life events. Sometimes people tell others about a detailed personal event from their own life. Think back over your past interactions with an immediate family member, an extended family member, a friend or a romantic partner, and try to identify a memory you have of a *very negative* event from someone else’s life. The event can be from any time in this person’s life and should be something that happened when you were *not* present. Sometimes an event in someone else’s life is described to you so vividly that you remember it almost as if it had happened to you. Other times, events from other people’s lives are simply shared as stories. Be as specific and detailed as possible, including descriptions of people, places and feelings. Remember, this should be a highly negative memory about something that happened to someone else.

Prompt 1: What else do you remember about the event?

Prompt 2: Can you remember anything else? / Can’t you remember anything else?

---

---

---

How old was your family member/friend when the event happened (Age or age range)? \_\_\_\_\_

Specificity (specific, repeated, extended): \_\_\_\_\_

Specific: 1 day or less (Ex: 6<sup>th</sup> Birthday party)

Repeated: An event that occurred on multiple occasions (Ex. Soccer practice every Sunday throughout one summer)

Extended: More than one day (Ex. A 7-day vacation in Florida)

How has this event changed your attitudes?

---

---

---

How has this event changed your behaviours?

---

---

---

Have you ever had a physical reaction when thinking of the memory? If yes, elaborate.

---

---

---

ID # \_\_\_\_\_

**Vicarious Memory (Positive):**

In personal relationships, people often share memories of life events. Sometimes people tell others about a detailed personal event from their own life. Think back over your past interactions with an immediate family member, an extended family member, a friend or a romantic partner, and try to identify a memory you have of a *very positive* event from someone else’s life. The event can be from any time in this person’s life and should be something that happened when you were *not* present. Sometimes an event in someone else’s life is described to you so vividly that you remember it almost as if it had happened to you. Other times, events from other people’s lives are simply shared as stories. Be as specific and detailed as possible, including descriptions of people, places and feelings. Remember, this should be a highly positive memory about something that happened to someone else.

Prompt 1: What else do you remember about the event?

Prompt 2: Can you remember anything else? / Can’t you remember anything else?

---

---

---

How old was your family member/friend when the event happened (Age or age range)? \_\_\_\_\_

Specificity (specific, repeated, extended): \_\_\_\_\_

Specific: 1 day or less (Ex: 6<sup>th</sup> Birthday party)

Repeated: An event that occurred on multiple occasions (Ex. Soccer practice every Sunday throughout one summer)

Extended: More than one day (Ex. A 7-day vacation in Florida)

How has this event changed your attitudes?

---

---

---

How has this event changed your behaviours?

---

---

---

Have you ever had a physical reaction when thinking of the memory? If yes, elaborate.

---

---

ID # \_\_\_\_\_

**Personal Memory (Negative):**

In personal relationships, people often share memories of life events. Sometimes people tell others about a detailed personal event from their own life. Think of a memory of a *very negative* event you have experienced and later told another person. The event can be from any time in your life. Be as specific and detailed as possible, including descriptions of people, places and feelings. The person to whom you told this memory could be an immediate family member, an extended family member, a friend or romantic partner. Remember, this should be a highly negative memory about something that happened to you.

Prompt 1: What else do you remember about the event?

Prompt 2: Can you remember anything else? / Can't you remember anything else?

---

---

---

---

---

How old were you when the event happened? (Age or age range) \_\_\_\_\_

Specificity (specific, repeated, extended): \_\_\_\_\_

Specific: 1 day or less (Ex: 6<sup>th</sup> Birthday party)

Repeated: An event that occurred on multiple occasions (Ex. Soccer practice every Sunday throughout one summer)

Extended: More than one day (Ex. A 7-day vacation in Florida)

How has this event changed your attitudes?

---

---

---

How has this event changed your behaviours?

---

---

---

Have you ever had a physical reaction when thinking of the memory? If yes, elaborate.

---

---

ID # \_\_\_\_\_

**Personal Memory (Positive):**

In personal relationships, people often share memories of life events. Sometimes people tell others about a detailed personal event from their own life. Think of a memory of a *very positive* event you have experienced and later told another person. The event can be from any time in your life. Be as specific and detailed as possible, including descriptions of people, places and feelings. The person to whom you told this memory could be an immediate family member, an extended family member, a friend or romantic partner. Remember, this should be a highly positive memory about something that happened to you.

Prompt 1: What else do you remember about the event?

Prompt 2: Can you remember anything else? / Can't you remember anything else?

---

---

---

---

How old were you when the event happened? (Age or age range) \_\_\_\_\_

Specificity (specific, repeated, extended): \_\_\_\_\_

Specific: 1 day or less (Ex: 6<sup>th</sup> Birthday party)

Repeated: An event that occurred on multiple occasions (Ex. Soccer practice every Sunday throughout one summer)

Extended: More than one day (Ex. A 7-day vacation in Florida)

How has this event changed your attitudes?

---

---

---

How has this event changed your behaviours?

---

---

---

Have you ever had a physical reaction when thinking of the memory? If yes, elaborate.

---

---

---

Appendix G  
Identity Distress Survey

To what degree have you recently been upset, distressed, or worried over the following issues in your life?	Very Severely				
	Severely				
	Moderately				
	Mildly				
	Not at all				
1. Long term goals? (e.g., finding a good job, being in a romantic relationship, etc.)	1	2	3	4	5
2. Career choice? (e.g., deciding on a trade or profession, etc.)	1	2	3	4	5
3. Friendships? (e.g., experiencing a loss of friends, change in friends, etc.)	1	2	3	4	5
4. Sexual orientation and behavior? (e.g., feeling confused about sexual preferences, intensity of sexual needs, etc.)	1	2	3	4	5
5. Religion? (e.g., stopped believing, changed your belief in God/religion, etc.)	1	2	3	4	5
6. Values or beliefs? (e.g., feeling confused about what is right or wrong, etc.)	1	2	3	4	5
7. Group loyalties? (e.g., belonging to a club, school group, gang, etc.)	1	2	3	4	5
8. Please rate your overall level of <i>discomfort</i> (how bad they made you feel) about all of the above issues that might have upset or distressed you <u>as a whole</u> .	1	2	3	4	5
9. Please rate how much uncertainty over these issues <u>as a whole</u> has interfered with your life (for example, stopped you from doing things you wanted to do, or being happy)	1	2	3	4	5
10. How long (if at all) have you felt upset, distressed, or worried over these issues <u>as a whole</u> ?					
Never or less than a month	1 to 3 months	3 to 6 months	6 to 12 months	More than 12 months	
1	2	3	4	5	

Appendix H  
Ego Identity Process Questionnaire



EIPQ

Listed below are a number of statements describing adolescent behavior. Please indicate how you feel about each statement.

Example: Politics are very important in my life.

- Write a 1 if you strongly disagree.
- Write a 2 if you disagree.
- Write a 3 if you slightly disagree.
- Write a 4 if you slightly agree.
- Write a 5 if you agree.
- Write a 6 if you strongly agree.

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
___ 1)					
___ 2)					
___ 3)					
___ 4)					
___ 5)					
___ 6)					
___ 7)					
___ 8)					
___ 9)					
___ 10)					
___ 11)					
___ 12)					
___ 13)					



1 Strongly Disagree	2 Disagree	3 Slightly Disagree	4 Slightly Agree	5 Agree	6 Strongly Agree
___14)	I am not sure about what type of dating relationship is best for me.				
___15)	I have not felt the need to reflect upon the importance I place on my family.				
___16)	Regarding religion, my beliefs are likely to change in the near future.				
___17)	I have definite views regarding the ways in which men and women should behave.				
___18)	I have tried to learn about different occupational fields to find the best one for me.				
___19)	I have undergone several experiences that made me change my view on men's and women's roles.				
___20)	I have consistently re-examined many different values in order to find the ones which are best for me.				
___21)	I think what I look for in a friend could change in the future.				
___22)	I have questioned what kind of date is right for me.				
___23)	I am unlikely to alter my vocational goals.				
___24)	I have evaluated many ways in which I fit into my family structure.				
___25)	My ideas about men's and women's roles will never change.				
___26)	I have never questioned my political beliefs.				
___27)	I have had many experiences that led me to review the qualities that I would like my friends to have.				
___28)	I have discussed religious matters with a number of people who believe differently than I do.				
___29)	I am not sure that the values I hold are right for me.				
___30)	I have never questioned my occupational aspirations.				
___31)	The extent to which I value my family is likely to change in the future.				
___32)	My beliefs about dating are firmly held.				

Appendix I  
 Depression, Anxiety Stress Scale – 21

<b>DASS<sub>21</sub></b>		<i>Name:</i>		<i>Date:</i>	
<p>Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you <i>over the past week</i>. There are no right or wrong answers. Do not spend too much time on any statement.</p> <p><i>The rating scale is as follows:</i></p> <p>0 Did not apply to me at all                  1 Applied to me to some degree, or some of the time                  2 Applied to me to a considerable degree, or a good part of time                  3 Applied to me very much, or most of the time</p>					
1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Appendix J  
Non-PREP Consent Form

**Informed Consent Form**

Title: Vicarious and Autobiographical Memory: Exploring Associations with Mood and Identity

Researcher: Emily Pond, Psychology Department, MUN  
Email: esp831@mun.ca Phone: 864-7698

Supervisor: Dr. Carole Peterson, Psychology Department, MUN  
Email: carole@mun.ca Phone: 864-7682

You are invited to take part in a research project entitled “*Vicarious and Autobiographical Memory: Exploring Associations with Mood and Identity.*”

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Emily Pond, if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

**Introduction:**

As part of my doctoral thesis, I am conducting research under the supervision of Dr. Carole Peterson. The project is concerned with young adults’ memories of personally experienced events and also vicarious memories (memories that individuals have in reference to events that they have not experienced but simply heard about from another person). We are hoping to compare vicarious and personal memories in how they are related to identity development and symptoms of psychological distress.

**Purpose of study:**

Presently autobiographical memory conceptions only encompass memories of personally experienced events; however, recently researchers have suggested that conceptions of autobiographical memory should also include vicarious memories. We would like to contribute to this area of literature. Furthermore, researchers have not yet compared vicarious and personal memories based on identity development or symptoms of psychological distress.

**What you will do in this study:**

You will be asked to think of five people who have been or who are central to your life. Then, you will be asked to recall two vicarious memories and two personal memories and describe as many details as possible for each memory. You will be asked additional details about each memory. For the vicarious memories, you will be asked additional details about the individual who directly experienced that event. Finally, you will be asked to complete three brief questionnaires.

Two questionnaires involve measures of identity. The *Ego Identity Process Questionnaire* measures identity growth, focusing on identity exploration and identity commitment. Identity exploration refers to the examination and questioning of potential identities that one may choose to adopt. Identity commitment refers to identity related choices that one has made in his/her life. The second identity measure is the *Identity Distress Survey*, which assesses distress associated with unresolved issues. Finally, there is a measure to assess psychological distress, the *Depression Anxiety Stress Scale*. This measure will assess current experiences of depression, anxiety and stress.

**Length of time:**

This study will take approximately one hour of your time.

**Compensation**

By participating in this study, you have the option of being entered into a draw for a \$200 gift card for the Avalon Mall.

**Withdrawal from the study:**

You can withdraw at any point during your participation without giving any reason, and all data collected up until that point will be destroyed. There are no consequences for withdrawal and there will be no academic impact (i.e., if you are in Dr. Peterson's class, or if Emily Pond is your Teaching Assistant, withdrawal will not affect you academically). If you withdraw, you will still be entered in the draw for a \$200 gift card. After participating in this study, you may choose to have your data removed, up until August 31, 2017. After this date, you will no longer have the option to remove your data.

**Possible benefits:**

There are no obvious benefits to you for participating in this study. By participating in this study, the scientific community will benefit by gaining information on the importance of vicarious memories and how they relate to personal memories.

**Possible risks:**

It is possible that you may remember an upsetting event during this study. If so, you will be provided with information about the University Counseling Centre should you wish to discuss your experience with a counselor.

**Confidentiality**

The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use, or disclosure.

The information gathered will be seen solely by the researchers involved in this study and will be used solely for research purposes.

During the study, if you disclose that you are at risk of harming yourself or someone else, the interviewer is obligated to break confidentiality and inform the appropriate mental health professionals and/or the authorities in order to help protect you or the other person from harm.

**Anonymity:**

Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.

Questionnaires and interview forms will be identified by ID number only and will not have any identifying information on them. Data will be reported in aggregated form for experience groups, and no information that identifies individual study participants will ever be released. Every reasonable effort will be made to ensure anonymity and you will not be identified in publications.

**Recording of data:**

The interviews will be audio-recorded and later transcribed for data scoring. All research assistants who transcribe the data will sign a confidentiality agreement.

**Storage of data:**

The data will be stored in a locked cabinet in a locked research lab (electronic data will be password protected), and access will be limited to the researchers involved in conducting this study who are all supervised by the Principal Investigator, Dr. Carole Peterson in the Department of Psychology. Memorial University's policy on integrity in Scholarly Research requires that the data be kept for a minimum of 5 years, after which the data will be destroyed in a secure manner.

**Reporting of Results:**

The data collected during this study will be used for a doctoral dissertation and for publication in journal articles. When complete, the dissertation will be publicly available at the Queen Elizabeth II (QEII) library. Data will be reported in aggregated form for experience groups.

**Sharing of results with participants:**

We would be happy to provide you with a summary of research findings or a copy of the published report once the study has been completed if you provide us with an email or mailing address.

**Questions:**

You are welcome to ask questions at any time during your participation in this research. If you would like more information about this study, please contact Emily Pond or Dr. Carole Peterson (contact information is at the beginning of this form).

**ICEHR Approval Statement:**

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

**Consent:**

Your signature on this form means that:

- You have read the information about the research.
  - You have been able to ask questions about this study.
  - You are satisfied with the answers to all your questions.
  - You understand what the study is about and what you will be doing.
  - You understand that you are free to withdraw from the study at any time, without having to give a reason, and that doing so will not affect you now or in the future.
  - You understand that any data collected from you up to the point of your withdrawal will be destroyed.
- 
- I *agree* to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation at any time.
  - I *agree* to be audio-recorded during the interview.
  - I *do not agree* to be audio-recorded during the interview.
  - I *agree* to the use of anonymous quotations (without my name being identified).
  - I *do not agree* to the use of quotations.

If you sign this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

**Your signature confirms:**

- I have read and understood what this study is about and appreciate the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.
- I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation.
- A copy of this Informed Consent Form has been given to me for my records.

---

Signature of participant

---

Date

If you would like a summary of the research findings or a copy of the published report, please provide either your email or mailing address below:

---

---

---

**Researcher's signature:**

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

---

Signature of Principal Investigator

---

Date

Appendix K  
PREP Consent Form

**Informed Consent Form: Psychology Research Experience Pool**

Title: Vicarious and Autobiographical Memory: Exploring Associations with Mood and Identity

Researcher: Emily Pond, Psychology Department, MUN  
Email: esp831@mun.ca Phone: 864-7698

Supervisor: Dr. Carole Peterson, Psychology Department, MUN  
Email: carole@mun.ca Phone: 864-7682

You are invited to take part in a research project entitled “*Vicarious and Autobiographical Memory: Exploring Associations with Mood and Identity.*”

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Emily Pond, if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

**Introduction:**

As part of my doctoral thesis, I am conducting research under the supervision of Dr. Carole Peterson. The project is concerned with young adults’ memories of personally experienced events and also vicarious memories (memories that individuals have in reference to events that they have not experienced but simply heard about from another person). We are hoping to compare vicarious and personal memories in how they are related to identity development and symptoms of psychological distress.

**Purpose of study:**

Presently autobiographical memory conceptions only encompass memories of personally experienced events; however, recently researchers have suggested that conceptions of autobiographical memory should also include vicarious memories. We would like to contribute to this area of literature. Furthermore, researchers have not yet compared vicarious and personal memories based on identity development, symptoms of psychological distress.



**What you will do in this study:**

You will be asked to think of five people who have been or who are central to your life. Then, you will be asked to recall two vicarious memories and two personal memories and describe as many details as possible for each memory. You will be asked additional details about each memory. For the vicarious memories, you will be asked additional details about the individual who directly experienced that event. Finally, you will be asked to complete three brief questionnaires.

Two questionnaires involve measures of identity. The *Ego Identity Process Questionnaire* measures identity growth, focusing on identity exploration and identity commitment. Identity exploration refers to the examination and questioning of potential identities that one may choose to adopt. Identity commitment refers to identity related choices that one has made in his/her life. The second identity measure is the *Identity Distress Survey*, which assesses distress associated with unresolved issues. Finally, there is a measure to assess psychological distress, the *Depression Anxiety Stress Scale*. This measure will assess current experiences of depression, anxiety and stress.

**Length of time:**

This study will take approximately one hour of your time.

**Compensation:**

You will receive one credit point toward your Psychology course per hour of participation or part thereof.

**Withdrawal from the study:**

You can withdraw from participation at any point during your participation without giving any reason, and any data collected up until that point will be destroyed. There are no consequences for withdrawal and there will be no academic impact (i.e. if you are in Dr. Peterson's class, or if Emily Pond is your Teaching Assistant, withdrawal will not affect you academically). If you withdraw, you will still receive one credit point towards your psychology course. After participating in this study, you may choose to have your data removed, up until August 31, 2017. After this date, you will no longer have the option to remove your data.

**Possible benefits:**

There are no obvious benefits to you for participating in this study. By participating in this study, the scientific community will benefit by gaining information on the importance of vicarious memories and how they relate to personal memories.

**Possible risks:**

It is possible that you may remember an upsetting event during this study. If so, you will be provided with information about the University Counseling Centre should you wish to discuss your experience with a counselor.

**Confidentiality:**

The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use, or disclosure.

The information gathered will be seen solely by the researchers involved in this study and will be used solely for research purposes.

During the study, if you disclose that you are at risk of harming yourself or someone else, the interviewer is obligated to break confidentiality and inform the appropriate mental health professionals and/or the authorities in order to help protect you or the other person from harm.

**Anonymity:**

Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.

Questionnaires and interview forms will be identified by ID number only and will not have any identifying information on them. Data will be reported in aggregated form for experience groups, and no information that identifies individual study participants will ever be released. Every reasonable effort will be made to ensure your anonymity; and you will not be identified in publications.

Please note that your course instructor will not have access to detailed Psychology Research Experience Pool participation details. He or she will only be able to view the total number of credit points earned by students, and will not know whether you have participated in this, or any other study, nor whether any credit points earned from participation in any study were earned from Research Participation, Research Observation, or completion of the alternative assignment.

**Recording of data:**

The interviews will be audio-recorded and later transcribed for data scoring. All research assistants who transcribe the data will sign a confidentiality agreement.

**Storage of Data:**

The data will be stored in a locked cabinet in a locked research lab (electronic data will be password protected), and access will be limited to the researchers involved in conducting this study who are all supervised by the principal investigator, Dr. Carole Peterson in the Department of Psychology. Memorial University's policy on integrity in Scholarly Research requires that the data be kept for a minimum of 5 years, after which the data will be destroyed in a secure manner.

**Research Participation vs. Research Observation:**

Your participation in this study is intended to be an educational Research Experience. You therefore have the choice of whether or not to provide data to researchers for inclusion in their analysis. If you consent to provide your data for analysis, please check

the box below labeled “Research Participation.” However, if you wish to observe the process of research participation without providing data to researchers for inclusion in their analysis, then you may choose to do so, without any loss of experience or credit. If you consent to observe the research experience without providing any data, please check the box below labeled “Research Observation.” Please note that you may choose to change your Research Experience from Participation to Observation at any point in time, without loss of experience or credit.

**Reporting of Results:**

The data collected during this study will be used for a doctoral dissertation and for publication in journal articles. When complete, the dissertation will be publicly available at the QEII library. Data will be reported in aggregated form for experience groups.

**Sharing of results with participants:**

We would be happy to provide you with a summary of research findings or a copy of the published report once the study has been completed if you provide us with an email or mailing address.

**Questions:**

You are welcome to ask questions at any time during your participation in this research. If you would like more information about this study, please contact Emily Pond or Dr. Carole Peterson (contact information is at the beginning of this form).

**ICEHR Approval Statement:**

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University’s ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at [icehr@mun.ca](mailto:icehr@mun.ca) or by telephone at 709-864-2861.

**Consent:**

Your signature on this form means that:

- You have read the information about the research.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw from the study at any time, without having to give a reason, and that doing so will not affect you now or in the future.
- You understand that any data collected from you up to the point of your withdrawal will be destroyed.
- You understand the difference between Research Participation and Research Observation, and that you may freely choose which Research Experience option you prefer.

- You understand that you are free to change your Research Experience option from Participation to Observation at any time during the study, without having to give a reason, and that doing so will not affect you now or in the future.
- You understand that any data collected from you up to the point of your choice to participate as a Research Observer will be destroyed.
  
- I *agree* to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation at any time.
- I *agree* to be audio-recorded during the interview.
- I *do not agree* to be audio-recorded during the interview.
- I *agree* to the use of anonymous quotations (without my name being identified).
- I *do not agree* to the use of quotations.

**Research Participation vs. Research Observation:**

- Research Participation: I consent to provide data from my research experience to researchers for analysis.
- Research Observation: I do not consent to provide data from my research experience to researchers for analysis.

If you sign this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

**Your signature confirms:**

- I have read and understood what this study is about and appreciate the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.
- I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation.
- A copy of this Informed Consent Form has been given to me for my records.

---

Signature of participant

---

Date

If you would like a summary of the research findings or a copy of the published report, please provide either your email or mailing address below:

---

---

---

**Researcher's signature:**

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

---

Signature of Principal Investigator

---

Date

Appendix L  
Demographic Questionnaire

ID # \_\_\_\_\_

Demographic Questionnaire

ID number: \_\_\_\_\_

Today's Date (yyyy/mm/dd): \_\_\_\_\_

Sex: \_\_\_\_\_

D.O.B. (yyyy/mm/dd): \_\_\_\_\_

Marital Status: \_\_\_\_\_

What is the highest level of education you have completed?

- High School Graduate
- Some university, college or trade school
- College or trade school graduate
- University Graduate
- Post-Graduate Degree

Please list all languages that were routinely spoken in your home before you began attending school.  
Please also estimate the percentage that each language was used (e.g., English 75%, French 25%)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

Appendix M  
Social Prompt Form

ID # \_\_\_\_\_

Please write the names of 5 people who are, or who have been central to your life:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

Appendix N  
Follow-up Memory Questionnaires

ID # \_\_\_\_\_

**Vicarious Memory (Negative) Follow-up Questions**

1. How old were you when you first heard about this event from your friend/family member's life?  
\_\_\_\_\_
2. How often was this memory shared with you? \_\_\_\_\_
3. How frequently do you think about the memory? \_\_\_\_\_
4. What emotion is attached to the memory? \_\_\_\_\_
5. How positive was the event?  
Not positive at all 1 2 3 4 5 Extremely positive
6. How negative was the event?  
Not negative at all 1 2 3 4 5 Extremely negative
7. Rate the vividness of this memory: \_\_\_\_\_  
1 (very vague) 2 (a bit vague) 3 (fairly clear) 4 (quite clear) 5 (vivid)
8. What is the nature of your relationship with the individual who experienced this event?  
\_\_\_\_\_
9. How much contact do you, or have you had with the individual who experienced this event?  
\_\_\_\_\_
10. What is the gender of the individual who experienced this event? \_\_\_\_\_
11. At the time that the memory was shared with you, how old was the individual who experienced this event? \_\_\_\_\_
12. Rate the closeness of your relationship with the individual who experienced this event.  
Not close at all 1 2 3 4 5 Extremely close
13. In thinking about your life and the memories you have of it, some memories are salient, important, interesting or in other ways significant. If someday you become famous and someone writes a biography about you, such memories are the sort that are likely to be included because they are important in making you who you are. Or, perhaps they are important to you personally but you may prefer they not be made public. For the memory that you just gave, how important or significant is that memory for you personally?  
Definitely NOT important 1 2 3 4 5 6 7 Definitely important
14. How likely it is that you will tell your (future) children about this event?  
Definitely NOT tell 1 2 3 4 5 6 7 Definitely tell



ID # \_\_\_\_\_

Please think back upon the memory you just recalled and answer the following questions in an honest and sincere way, by circling a number from 1 to 5:

	<b>Not at all</b>	<b>A little bit</b>	<b>Moderately</b>	<b>Quite a bit</b>	<b>Extremely</b>
15. My memory of this event from my family member/friend's life helps me better understand my family member/friend	1	2	3	4	5
16. My memory of this event from my family member/friend's life helps me feel closer to my family member/friend	1	2	3	4	5
17. My memory of this event from my family member/friend's life influences the relationships I have with others	1	2	3	4	5
18. My memory of this event from my family member/friend's life helps me solve problems in my own life	1	2	3	4	5
19. My memory of this event from my family member/friend's life impacts my life decisions	1	2	3	4	5

Please think back upon the memory you just recalled and answer the following questions in an honest and sincere way, by circling a number from 1 to 5:

	<b>Totally disagree</b>				<b>Totally agree</b>
20. My memory of this event has become part of my identity	1	2	3	4	5
21. My memory of this event has become a reference point for the way I understand myself and the world.	1	2	3	4	5
22. My memory of this event has become a central part of my life story.	1	2	3	4	5
23. My memory of this event colors the way I think and feel about other experiences	1	2	3	4	5

ID # \_\_\_\_\_

**Vicarious Memory (Positive) Follow-up Questions**

1. How old were you when you first heard about this event from your friend/family member's life?  
\_\_\_\_\_
2. How often was this memory shared with you? \_\_\_\_\_
3. How frequently do you think about the memory? \_\_\_\_\_
4. What emotion is attached to the memory? \_\_\_\_\_
5. How positive was the event?  
Not positive at all 1 2 3 4 5 Extremely positive
6. How negative was the event?  
Not negative at all 1 2 3 4 5 Extremely negative
7. Rate the vividness of this memory: \_\_\_\_\_  
1 (very vague) 2 (a bit vague) 3 (fairly clear) 4 (quite clear) 5 (vivid)
8. What is the nature of your relationship with the individual who experienced this event? \_\_\_\_\_
9. How much contact do you, or have you had with the individual who experienced this event?  
\_\_\_\_\_
10. What is the gender of the individual who experienced this event? \_\_\_\_\_
11. At the time that the memory was shared with you, how old was the individual who experienced this event? \_\_\_\_\_
12. Rate the closeness of your relationship with the individual who experienced this event.  
Not close at all 1 2 3 4 5 Extremely close
13. In thinking about your life and the memories you have of it, some memories are salient, important, interesting or in other ways significant. If someday you become famous and someone writes a biography about you, such memories are the sort that are likely to be included because they are important in making you who you are. Or, perhaps they are important to you personally but you may prefer they not be made public. For the memory that you just gave, how important or significant is that memory for you personally?  
Definitely NOT important 1 2 3 4 5 6 7 Definitely important
14. How likely it is that you will tell your (future) children about this event?  
Definitely NOT tell 1 2 3 4 5 6 7 Definitely tell

ID # \_\_\_\_\_

Please think back upon the memory you just recalled and answer the following questions in an honest and sincere way, by circling a number from 1 to 5:

	<b>Not at all</b>	<b>A little bit</b>	<b>Moderately</b>	<b>Quite a bit</b>	<b>Extremely</b>
15. My memory of this event helps me better understand myself	1	2	3	4	5
16. My memory of this event helps me feel better about myself	1	2	3	4	5
17. My memory of this event influences my relationships with others	1	2	3	4	5
18. My memory of this event helps me solve problems in my life	1	2	3	4	5
19. My memory of this event impacts my life decisions	1	2	3	4	5

Please think back upon the memory you just recalled and answer the following questions in an honest and sincere way, by circling a number from 1 to 5:

	<b>Totally disagree</b>			<b>Totally agree</b>	
20. My memory of this event has become part of my identity	1	2	3	4	5
21. My memory of this event has become a reference point for the way I understand myself and the world.	1	2	3	4	5
22. My memory of this event has become a central part of my life story.	1	2	3	4	5
23. My memory of this event colors the way I think and feel about other experiences	1	2	3	4	5

ID # \_\_\_\_\_

**Personal Memory (Negative):**

In personal relationships, people often share memories of life events. Sometimes people tell others about a detailed personal event from their own life. Think of a memory of a *very negative* event you have experienced and later told another person. The event can be from any time in your life. Be as specific and detailed as possible, including descriptions of people, places and feelings. The person to whom you told this memory could be an immediate family member, an extended family member, a friend or romantic partner. Remember, this should be a highly negative memory about something that happened to you.

Prompt 1: What else do you remember about the event?

Prompt 2: Can you remember anything else? / Can't you remember anything else?

---

---

---

---

---

How old were you when the event happened? (Age or age range) \_\_\_\_\_

Specificity (specific, repeated, extended): \_\_\_\_\_

Specific: 1 day or less (Ex: 6<sup>th</sup> Birthday party)

Repeated: An event that occurred on multiple occasions (Ex. Soccer practice every Sunday throughout one summer)

Extended: More than one day (Ex. A 7-day vacation in Florida)

How has this event changed your attitudes?

---

---

---

How has this event changed your behaviours?

---

---

---

Have you ever had a physical reaction when thinking of the memory? If yes, elaborate.

---

ID # \_\_\_\_\_

Please think back upon the memory you just recalled and answer the following questions in an honest and sincere way, by circling a number from 1 to 5:

	<b>Not at all</b>	<b>A little bit</b>	<b>Moderately</b>	<b>Quite a bit</b>	<b>Extremely</b>
15. My memory of this event helps me better understand myself	1	2	3	4	5
16. My memory of this event helps me feel better about myself	1	2	3	4	5
17. My memory of this event influences my relationships with others.	1	2	3	4	5
18. My memory of this event helps me solve problems in my life	1	2	3	4	5
19. My memory of this event impacts my life decisions	1	2	3	4	5

Please think back upon the memory you just recalled and answer the following questions in an honest and sincere way, by circling a number from 1 to 5:

	<b>Totally disagree</b>			<b>Totally agree</b>	
20. My memory of this event has become part of my identity	1	2	3	4	5
21. My memory of this event has become a reference point for the way I understand myself and the world.	1	2	3	4	5
22. My memory of this event has become a central part of my life story.	1	2	3	4	5
23. My memory of this event colors the way I think and feel about other experiences	1	2	3	4	5

ID # \_\_\_\_\_

**Personal Memory (Positive):**

In personal relationships, people often share memories of life events. Sometimes people tell others about a detailed personal event from their own life. Think of a memory of a *very positive* event you have experienced and later told another person. The event can be from any time in your life. Be as specific and detailed as possible, including descriptions of people, places and feelings. The person to whom you told this memory could be an immediate family member, an extended family member, a friend or romantic partner. Remember, this should be a highly positive memory about something that happened to you.

Prompt 1: What else do you remember about the event?

Prompt 2: Can you remember anything else? / Can't you remember anything else?

---

---

---

---

How old were you when the event happened? (Age or age range) \_\_\_\_\_

Specificity (specific, repeated, extended): \_\_\_\_\_

Specific: 1 day or less (Ex: 6<sup>th</sup> Birthday party)

Repeated: An event that occurred on multiple occasions (Ex. Soccer practice every Sunday throughout one summer)

Extended: More than one day (Ex. A 7-day vacation in Florida)

How has this event changed your attitudes?

---

---

---

How has this event changed your behaviours?

---

---

---

Have you ever had a physical reaction when thinking of the memory? If yes, elaborate.

---

---

ID # \_\_\_\_\_

Please think back upon the memory you just recalled and answer the following questions in an honest and sincere way, by circling a number from 1 to 5:

	<b>Not at all</b>	<b>A little bit</b>	<b>Moderately</b>	<b>Quite a bit</b>	<b>Extremely</b>
15. My memory of this event helps me better understand myself	1	2	3	4	5
16. My memory of this event helps me feel better about myself	1	2	3	4	5
17. My memory of this event influences my relationships with others.	1	2	3	4	5
18. My memory of this event helps me solve problems in my life	1	2	3	4	5
19. My memory of this event impacts my life decisions	1	2	3	4	5

Please think back upon the memory you just recalled and answer the following questions in an honest and sincere way, by circling a number from 1 to 5:

	<b>Totally disagree</b>				<b>Totally agree</b>
20. My memory of this event has become part of my identity	1	2	3	4	5
21. My memory of this event has become a reference point for the way I understand myself and the world.	1	2	3	4	5
22. My memory of this event has become a central part of my life story.	1	2	3	4	5
23. My memory of this event colors the way I think and feel about other experiences	1	2	3	4	5

Appendix O  
Sudoku

ID # \_\_\_\_\_

**Sudoku**

Try to Fill in all the empty boxes so that:

- Each *row* contains numbers 1 through 4
- Each *column* contains numbers 1 through 4
- Each *box* contains numbers 1 through 4

	2		
	1	4	
		3	



Appendix P  
Debrief Form

**Feedback Sheet**

Thank you for participating in this study! Your participation and the data that you contribute are valuable for our research. This feedback sheet is intended to explain to you the purpose and hypotheses of the study in which you have just participated.

In this study, we asked you to recall two vicarious memories, two personal memories and follow-up questions regarding these memories. We also asked you to complete three questionnaires. Autobiographical memory is defined as memories of personally experienced events and personal facts. Recent research has suggested that vicarious memory, memories in reference to events that individuals have not experienced but heard about from another person, may be an important part of autobiographical memory and perhaps vicarious memory should be included in conceptions of autobiographical memory. This study will contribute information on whether vicarious memory deserves a place in autobiographical memory. We expect that the way in which participants rate the qualities of vicarious memories will follow the same pattern as personal memories, although the vicarious memories will be rated at a lower intensity.

Prior to your participation in this study, we did not inform you that we are also examining self-event connections within memories. Self-event connections are statements in which individuals connect part of a past experience to their current self (for example, my memory of passing a test made me realize that I am smart). Self-event connections are important because they allow memories to be integrated into a narrative identity, which means that they are important in the formation of identity. For personal memories, we expect that individuals who reason about themselves in a positive way, particularly in response to negative events, will have more identity development and less psychological distress than individuals who reason about themselves negatively. We are also looking at how self-event connections compare between vicarious memories and personal memories; however, it is unclear how self-event connections will present in vicarious memory reports, as this is the first study to examine self-event connections in vicarious memory reports.

Prior to your participation in this study, we were unable to disclose our interest in self-event connections. If we had disclosed this additional research focus, it may have influenced the way you recalled your memories. You may have used self-event connections more or less frequently than what would be typical, thereby reducing the accuracy of the results. We wanted to ensure that you would recall your memories in a natural way.

If you are uncomfortable in any way as a result of your participation in this study now that you know the true purpose of this study, you may choose to withdraw consent, and the data you provided will be destroyed.

We appreciate your participation in this experiment and hope that this has been an interesting experience. If you have any additional questions about this research or other research conducted in this lab, please ask the Primary Investigator (Dr. Carole Peterson, [carole@mun.ca](mailto:carole@mun.ca), 709-864-7682). If you have any ethical concerns about your participation in this study (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at [icehr@mun.ca](mailto:icehr@mun.ca) or by telephone at 709-864-2861.

Once again, thank you for your participation in this experiment.

If you would like to learn more about autobiographical or vicarious memory, please see the following articles:

Pillemer, D. B., Steiner, K. L., Kuwabara, K. J., Thomsen, D. K., & Svob, C. (2015). Vicarious memories. *Consciousness and Cognition*, *36*, 233-245.  
doi:10.1016/j.concog.2015.06.010

Merrill, N., Waters, T. A., & Fivush, R. (2016). Connecting the self to traumatic and positive events: Links to identity and well-being. *Memory*, *24*, 1321-1328.  
doi:10.1080/09658211.2015.1104358

## Appendix Q

Self-Event Connection Coding Manual (E. Pond Adaption to the Fivush Lab Self-Event Connection Coding Scheme, which was adapted from Banks and Salmon, 2013)

**Self-Event Connection Coding Scheme**

**Self-event connections** - These are any explicit connections that the individual constructs between their experiences and their current sense of self (beliefs and knowledge about who they are as a person at the time they described the narrative).

**Self-Connections (McLean et al., 2005)**

- A connection between an event and the self is defined as any point in the narrative when the reporter links some aspect of the event to some aspect of the self. There must be an *explicit* connection, which the coder can point to for evidence. Examples of self-connections include connecting events to aspects of personality, one's self-worth or well-being, personal growth, values, behaviour, emotional states, outlook on life, hobbies/career, coping, or external generalizations about the world.
- If there is more than one connection made the coder does not code each instance of a connection that is on the same topic. For example, the following excerpt would be coded as only having one connection about self-esteem: "And it just like, makes me feel um, feel like um, I'm not worth anything... I just feel like I have a really low self-esteem and self-confidence at the point... partly just how low I can feel um, like, how bad um, I can feel about myself, like, no self-confidence, no self-esteem just no um, motivation for anything." If the coder connects to two different aspects of self, count as more than one connection (e.g., "This event made me more independent, but also more cautious.>").
- **Kind of Connection.** This coding category is for the kind of connection that is made, which is the where the connection is focused. The reporter may mention more than one kind of connection (e.g., change in values and relationships), but choose the connection *most emphasized*. These categories are mutually exclusive. Choose from the following categories for kind of connection:
  - If two SE connection categories could potential fit, choose the more emphasized self-event connection or use the overwhelming theme.
  - **Code connections throughout the entire transcript (beyond the information provided in free recall)**
  - **We are not coding specific emotions (past or present) here.**
  - **We are in agreement to code only current expressions and not past expressions...** It can be tricky to distinguish whether the person is simply describing what happened or whether what they are saying is an insight into themselves and their life. It may be useful to think about whether the statement reflects what was happening AT THE TIME/or what the person was thinking and feeling AT THE TIME (not a self-event connection) or whether it reflects their

CURRENT thinking about who they are NOW (most likely a self-event connection).

- **Referring to the future does not necessarily get coded...** It has to clearly fit one of the categories to count.
- **Also, favour the explicit** – if it “sort of seems like the person might be saying this” – be cautious about coding it. If the person explicitly states “This event made me this kind of awesome” – code it.

Self-event connections most commonly link past experiences to ...

<p><b>Current DISPOSITIONS</b></p> <p><b>Note: Not coded in personal memories if referring to someone other than the Self.</b></p> <p><b>Note: Can only be coded in vicarious memories for the person whom the memory is about and the Self.</b></p>	<p><b>Traits, characteristics, qualities, roles</b></p> <p><b>Generalized emotional reactions</b></p> <p><b>Current behaviours with implications for self. (Includes hobbies, activities that are important to the individual).</b></p> <p><i>Interest: This focuses on one's hobbies, interests, including career or vocational issues.</i></p> <p><i>Personality: This focuses on personality at the trait level, e.g. shyness.</i></p> <p><i>Behaviour: This focuses on behaviour. (If the behaviour has implications for relationships, consider "Intimacy")</i></p> <p><i>Role: Change in roles, such as becoming a parent or a widow, taking on new responsibilities. This code is for connections that don't mention other things (e.g., developing intimacy with one's child after becoming a mother, which would be intimacy/interpersonal), but rather, is just for those that suggest a role change and nothing more.</i></p> <p><b>A trait or characteristic that the participant possesses, which existed prior to the event</b></p>	<p>"... cause I'm like a very introverted person, and where I work, there's so many people, and it's all about teamwork..."</p> <p>"I am the type of person who..."</p> <p>"Any problem within my family structure really upsets me..."</p> <p>"I hate it when my friends are sad"</p> <p>"...being in love brings out the best in me."</p> <p>"I love to make everyone happy and solve conflicts"</p> <p>"I aspire to become a doctor"</p> <p>"I don't get emotional"</p> <p>"I'm the kind of person I really love surprises and surprising people"</p> <p>"I do tend to be very shy meeting new people"</p> <p>"Generally I'm not good around large crowds. I don't really like the feeling of being closed in like that"</p>
--	---	---

<p><b>Current VALUES</b></p>	<p><b>This focuses on topics such as morality, right and wrong, and how one wants to project the self in the world.</b></p> <p><b>Beliefs about what is right or wrong, beliefs about what <i>should</i> happen</b></p> <p><b>Norms, behaviours with implications for how others ought to behave</b></p> <p><b>Evaluations of changes to self or outlook, specifically evaluation of a phrase that is a self-event connection in another category</b></p> <p><b>When conding valence for values, consider the intention, for example if they say that “I learned I should never be unkind to others,” that would be positive.</b></p>	<p>“I now realize that kids shouldn’t ever assume the role of adults.”</p> <p>“I do not and will never boast about this achievement.”</p> <p>“...which is good in a lot of ways...”</p> <p>“...which is wrong of me...”</p> <p>“It shouldn't have happened in the first place and is kind of unfair”</p> <p>“It would be nice if she acknowledged her mistake”</p> <p>“Everyone deserves a second chance”</p> <p>“It shouldn’t have been his problem”</p> <p>“It reinforces my values of consent and respect”</p> <p>“Don’t be like my father”</p> <p>"So I think that was why it was so bad cause he kind of got in there first and it was shortly after they had broken up but still you don't do that"</p> <p>"I'm very against drugs, I don't do drugs or date people who do drugs. I just don't want it in my life"</p>
<p><b>Current OUTLOOK</b></p>	<p><b>This focuses on one’s attitude or perspectives or a change in attitude or perspective. Often this is general (e.g. attitudes</b></p>	<p>“You never know what’s going to happen so enjoy life today ...”</p>

	<p><b>about the world), but can be more personal, (e.g. attitudes about friendships or towards certain kinds of experiences or life events).</b></p> <p><b>Attitudes, perspectives about the world, others, relationships in general, self.</b></p> <p><b>Acquiring more general knowledge or awareness. More a change in awareness or knowledge rather than a change in behaviour.</b></p>	<p>“You see the world differently”</p> <p>“It makes the bad times not so tough.”</p> <p>“I think of how lucky I am.”</p> <p>“There is nothing like doing something that makes your parents proud.”</p> <p>“You never know what someone might be going through”</p> <p>“I have an increased awareness of children in unsafe homes and how little control they have over their lives”</p> <p>“I realized that moving is not scary”</p> <p>“It reinforced my derogatory view of men”</p> <p>“Go with the flow, let things happen”</p> <p>“It stuck with me ‘til now and it would influence my behaviour”</p> <p>“It's made me really proud of her”</p> <p>"I think I am more aware of people in wheelchairs and what they deal with and just knowing about accessibility and how to make it better"</p>
--	---	--

<p><b>Current SELF-ESTEEM/WORTH</b></p>	<p><b>This is focused on increases or decreases in one’s feeling of self-worth or self-esteem, how good or bad one feels about oneself.</b></p>	<p>“Having failed that test makes me feel like I’m not worth anything...”</p> <p>“I like who I am now.”</p> <p>"I believe in myself a bit more, it gives me a bit more confidence that people do like me. I didn't think the whole school would collectively vote for me"</p> <p>"It made me feel a little bit more sure of myself. Just the fact that I did reach the goal that I'd been working towards cause I'm not a very confident person by nature but that kind of made me feel better about myself"</p> <p>"And kind of just losing a lot of confidence because I don't fail things... ever"</p>
<p><b>PERSONAL GROWTH</b></p>	<p><b>This focused on maturing or developing confidence, strength, or other such aspects of one’s personal development.</b></p> <p><b>Maturing, personal development and change</b></p> <p><b>When participants use words to signal a change, such as “more” or “increased,” the SE-Connection is likely PG (unless better described by another category Ex. “Since that event, I’ve become more open with my mom.” This would better fit within the Intimacy category.)</b></p>	<p>“It definitely gave me more confidence”</p> <p>“It has caused me to mature very quickly.”</p> <p>“It has shaped my personality...”</p> <p>“I really learned about love with him.”</p> <p>“I try not to judge people now. I try to have patience and more understanding for what people are going through” (generalized, not directed towards specific relationships)</p>



	<p><b>**Personal growth trumps other categories</b></p> <p><b>Note: "Makes me WANT to do..." Not coded PG. Wanting isn't doing. PG only if a clear change has occurred.</b></p>	<p>“It has definitely made me drive a lot safer and when other people are driving I tend to watch the road conditions a bit more”</p> <p>“I saw the world differently and it allowed me to become closer with a lot of people”</p> <p>“It made me think about things more, now I’m less spontaneous”</p> <p>“I’m more open to meeting people now because I know it can work out.”</p> <p>“It made me more involved with art.”</p> <p>“It’s just made me work harder in job settings”</p> <p>“I’m more equipped to handle a situation like that, it’s made me more strong as a person”</p> <p>“It’s made me more empathetic towards people that have dealt with rape and sexual assault”</p> <p>“I’m definitely more sympathetic and my behaviour has changed in the sense that I’ll go more out of my way to help people”</p>
<p><b>INTIMACY</b></p>	<p><b>This is a connection that changes, develops, or reflects a relationship with someone else, or a change or development in</b></p>	<p>“My family is my foundation.”</p> <p>“I have a really tight, close-knit group of friends.”</p>

	<p><b>role in relation to someone else.</b></p> <p><b>How relationships inform a sense of self or self understanding</b></p> <p><b>Qualities of current relationships</b></p> <p><b>Implications for how the individual interacts with others. Connections must be specific to a person, group of people, or a specific relationship (Ex. Friends, or romantic relationship)</b></p> <p><b>Do not code simple descriptions (Ex. “My mom is the only family I have”)</b></p>	<p>“I’m the oldest so I am usually the one who deals with family conflict”</p> <p>“I make sure I spend time with my family”</p> <p>“I started opening up to my friends more”</p> <p>“He is one of my close friends now”</p> <p>“I’m more closed off in romantic relationships”</p> <p>“My mother and I don’t get along”</p> <p>"I'm more empathetic to my mom"</p> <p>"The first person I told that to was my grandfather who I'm still really close to"</p>
<p><b>INTERPERSONAL CONNECTIONS</b></p> <p><b>Note: Emulating or copying someone else's behaviour.</b></p>	<p><b>Interpersonal connections are exclusively VICARIOUS memories. For this kind of connection to be present, the participant must indicate that individual who experienced the event had a particular outlook, value or disposition associated with the event. This outlook, value or disposition was also adopted by the participant, although they did not directly experience the event. Code the self-event connection as both “Interpersonal” and <i>subcode</i> for the specific type of self-event connection.</b></p> <p><b>Both “self” and the person who experienced the event</b></p>	<p>“(My mother always loved to dance, she would go dancing with her friends every Saturday as a teenager) She always points out that I received my rhythm gene from her. “</p> <p>“My dad was always on sports teams, and he made a lot of friends that way. He’s like, my dad’s like really funny so I guess he was always like cracking jokes and stuff. (So I try and be like that too).”</p> <p>“Seeing my dad looking to do better in his life pushes me to do the same.”</p>

	<p><b>subject of the vicarious memory.</b></p> <p><b>Directly connecting a disposition, value, or outlook between the self and the person who experienced the memory (in the case of vicarious memories)</b></p>	<p>"She was in a rough situation so if I feel like I can't take care of myself now I'm just like well she had to do that."</p>
--	--	--

**Hierarchy of Self-Event Connection Categories**

Interpersonal Connections



Personal Growth



Outlook



Values



Intimacy



Current Self-Esteem



Dispositions

*Only use hierarchy if a self-event connection appears to fit 2 (or more) categories equally. Choose the category that is most emphasized. For example, if it has qualities of Personal Growth and Intimacy, but Intimacy seems like the best descriptor code Intimacy and disregard the hierarchy.*

**Self-event connection valence** - Whether the information about the self that is highlighted in the self-event connection is positive (i.e. describes a positive feature of the self) or negative. \*Importantly – evaluate valence based upon consequences/implications for the self.

Code the implied or intended valence if not explicit (Ex. “I am less fearful” – positive)

This is a categorical system.

Valence is coded according to the specific SE-Connection, not necessarily the valence of the context that the SE-connection is embedded within.

<p><b>Neutral / Neither positive nor negative</b> (or a connection that could be either positive or negative, but there’s not enough information to tell)</p>
<p><i>Example: A major low point in my life was watching my grandad die on new years day... This changed the way I greet people</i></p> <p><i>Example: I am cautious</i></p> <p><i>Example: Life is predictable</i></p>
<p><b>Positive evaluation of the self</b> - The person mentions a positive characteristic or trait that they currently hold or they mention a positive outcome for the self that happened because of the event that, while not a characteristic or trait per se, still has positive implications for them and their lives (e.g. gaining greater closeness in an important relationship)</p>
<p><i>Example: When I was 17 I got very good grades in the end of year exams that I had worked very hard for. It gave me much more confidence for the future and lessened my personal worry that I would struggle at things like university and jobs.</i></p> <p><i>Example: I am more open to trying new things, less fearful.</i></p> <p><i>Example: I now spend more time with my family.</i></p>
<p><b>Negative evaluation of the self.</b> - The person mentions a negative characteristic or trait that they currently hold or they mention a negative outcome for the self that happened because of the event that, while not a characteristic or trait per se, still has negative implications for them and their lives (e.g. avoidance of social situations)</p>
<p><i>Example: When I was 19 years old I broke up with my first boyfriend of three years. This event intensified my depression and abandonment issues.</i></p> <p><i>Example: I am less trusting now.</i></p> <p><i>Example: It makes me defensive over my family</i></p>
<p><b>Mixed Emotion:</b> positive and negative evaluation of the self. - The connection involved elements of both positive and negative meaning. These were often situations where participants had learnt something (and thus could be considered an experience involving growth), but where the lesson learnt had negative connotations</p>
<p><i>Example: This experience taught me about the harsh realities of life.</i></p>

**To Whom the Connection has Been Made:**

We are additionally going to code for whom the connection has been made: the self, parent, sibling, grandparent, aunt/uncle, friend, romantic partner or other. When coding self-event connections for individuals other than the participant, ONLY code for the individual who experienced the event (i.e. the person who experienced the vicarious memory). Do not code SE connections for other people who are included in the memory. \*Note while the interpersonal connection is always for the self, we will sub-code according to which individual is coded below based on who experienced the event of the vicarious memory.

<b>Self</b>
<i>Example: I am now more confident about my athletic abilities.</i>
<b>Parent</b>
<i>Example: Mom has always been a musician, she's always taught music</i>
<b>Sibling</b>
<i>Example: He sees people in their truest form downtown. When they're drinking he says it reveals their true self</i>
<b>Grandparent</b>
<i>Example: My grandmother has always taken care of everyone in my family.</i>
<b>Other Relative</b>
<i>Example: My cousin really felt like a failure after she dropped out of university.</i>
<b>Friend</b>
<i>Example: She is ridiculously reckless.</i>
<b>Romantic Partner</b>
<i>Example: He feels like he does not belong in his family, they are all very serious and he is relaxed.</i>
<b>Other</b>
<i>Example: My neighbor stopped leaving the house after that happened. She worries that she will get hurt if she leaves.</i>

### Additional Guidelines for Coding Self-event Connections

**Do not code anything that is connecting a past experience to an aspect of the self that is not yet relevant:**

- This is especially relevant when connecting the past experience to a possible future behaviour. The behaviour has not yet occurred, and may never actually occur.
  - Ex. My parents were robbed at gunpoint, so when I own my own house I'll lock my doors. (Do not code)
- EXCEPTION: When the participant appears to have undergone a lot of reflection regarding the future behaviour, and appears to have current attitudes about that future behaviour
  - Ex. I feel like if I did get pregnant, I'd wait a while to tell people 'cause I would want to make sure that it was for sure and I wouldn't have to explain that it didn't carry. (Code)

**Do not code vague statements of change without elaboration:**

- Ex. It makes me look at refugee statuses differently (Do not code unless the participant mentions *how* his perspective has changed)

**Current Friendships:**

- When the participant connects an event to a current relationship, only code it as a self-event connection if the participants mentions/describes any aspect of the current relationship.
- Ex. During that basketball tournament, I met Jeremy and we're still friends today (Do not code)
- Ex. During that basketball tournament, I met Stephen and *we still talk everyday, we're really close* (Code)

**When to split up self-event connections:**

- It can be tricky to determine whether a participant response should be considered one self-event connection or whether it should be broken up into multiple self-event connections.
- If you're unsure, keep it as one – and use the self-event connection hierarchy to determine which is the overarching connection that should be coded
- Often times it may seem though there are two self-event connections, but the second is simply an elaboration of the first, so it should only be coded as one.
  - Ex. (1) *I think I believe in myself a little bit more, I don't doubt myself as much* (2) *so I put myself in situations where I can fail but I kind of go ahead anyways, it has made me more brave.*
  - In this example, there are two different phrases that could potentially be coded separately, however they are similar enough that they should be coded together as one personal growth.

- In order to break it up into multiple self-event connections, there must be distinctly different aspects of the current self that the participant is connecting to the self
  - Ex. (1) *“I think the whole house buying process in itself definitely changed my attitude and perspective on lawyers and perspective on the whole process. A whole new respect for everything in that industry and for my parents first of all for one like supporting us, we couldn't have done it without certain people that we have in our life. (2) And it made me more grateful for our parents. I have always been but throughout that like I think that made our relationship even closer even though they live in a different province. Yeah, that really connected our whole family.”*
  - In this example, "attitudes towards lawyers and family" and "closer to family" are distinct enough to split this sentence into two separate self-event connections (Outlook and Intimacy)