

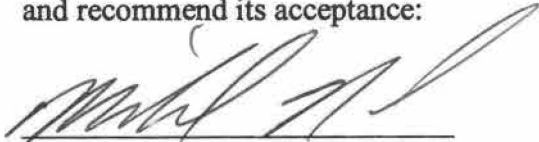
To the Graduate Council:

I am submitting herewith a dissertation written by Daniel T. Rogers entitled "Telling Stories of Distressing Betrayal: Relating Individual Differences in Personal Narrative Form to Physiological and General Functioning." I have examined the final paper copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

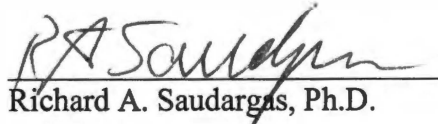


Robert G. Wahler, Ph.D.
Major Professor

We have read this dissertation
and recommend its acceptance:



Michael R. Nash, Ph.D.



Richard A. Saudargas, Ph.D.



Allen R. Dunn, Ph.D.

Accepted for the Council:



Vice Provost and Dean of
Graduate Studies

Thesis
2003b
.R64

TELLING STORIES OF DISTRESSING BETRAYAL:
RELATING INDIVIDUAL DIFFERENCES IN PERSONAL NARRATIVE FORM TO
PHYSIOLOGICAL AND GENERAL FUNCTIONING

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Daniel T. Rogers
August 2003

DEDICATION

This dissertation is dedicated to my wife, April Lawrence Rogers, for her patience and support, and to my parents, Jackie Thomas and Bobbie Granger Rogers for their commitment to my education.

ACKNOWLEDGEMENTS

Numerous people have played a role in the progression of not only this line of research but also my development as a psychologist. Among them, I have benefited greatly from knowing and working with my faculty advisor and mentor, Dr. Robert Wahler. His unique vision and understanding of human experience is a constant reminder that the integration of research and clinical practice is best accomplished in the minds of those capable of such work. Dr. Kathryn White has served a critical role by encouraging a desire to retain intellectualism and wield it in areas of professional and personal life. I also express gratitude to Drs. Michael Nash, Richard Saudargas, and Allen Dunn, for their participation on the dissertation committee and for their critiques throughout the process. The transcription, coding, and processing of personal narratives would not have been possible without the work of numerous research assistants and collaboration from my colleagues, Jared Younger and Laura Porter. Finally, I would like to express gratitude to William Collins and Fung Chan for statistical consultations and their insightful suggestions.

ABSTRACT

The current study investigates the relationships between individual differences in the coherence and richness of personal narratives about distressing experiences and observed variations in physiological, physical, and psychological response patterns. After reviewing the literature on the function and form of personal narrative, as well as the nature and impact of distressing experiences, an original empirical investigation is presented. Ninety-seven undergraduate students narrated about a distressing interpersonal experience. They provided information concerning their physical and psychological functioning, and were physiologically monitored during the act of narrating. Analyses were conducted to examine this data in accordance to several hypotheses generated from theoretical understandings of personal narrative and empirical literature on coping and the narrative expression of distressing experiences. As predicted, narrative coherence was inversely correlated with physical symptoms while richness was inversely correlated with stress. A higher level of coherence was also observed among participants with positive health indicators. In contrast to the hypotheses, coherence was inversely predictive of forgiveness and empathy towards one's offender. As was hypothesized, coherence was directly predictive of heart rate reactivity and recovery during narration of the distressing experience, while richness was directly predictive of mean arterial pressure reactivity. The current findings provide support for previous research indicating the detriments of repressive coping and the key role of language in response to distressing experiences. Importantly, the current study indicates the need to further investigate individual differences in the process of narrating personal experience and the role that they may play in effects on current functioning.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
<i>Defining Personal Narrative</i>	5
<i>Narrative Function</i>	10
<i>Representation</i>	14
<i>Social Cognition</i>	17
<i>Object Relations</i>	20
<i>The Trouble with Truth</i>	22
<i>Narrative Form</i>	25
<i>Personal Narrative Development</i>	26
<i>Coherence</i>	29
<i>Richness</i>	33
<i>Distressing Experience and Responses</i>	36
<i>The Impact of Trauma and Distress</i>	38
<i>Repression Responses</i>	40
<i>Expression Responses</i>	42
<i>Catharsis</i>	44
<i>The Role of Language</i>	45
<i>Forgiveness and Empathy</i>	48
<i>Narrative Expression Research</i>	50
<i>Current Study</i>	56
<i>Focus</i>	56
<i>Methodology</i>	57
<i>Hypotheses</i>	58
<i>Physical and Psychological Health Factors</i>	58
<i>Forgiveness and Empathy</i>	60
<i>Physiological Responsivity</i>	61
II. METHODS	64
<i>Participants</i>	64
<i>Procedures</i>	64
<i>Measures</i>	66
<i>Personal Narrative Interview</i>	66
<i>Physiological Functioning</i>	67
<i>Quality of the Distressing Event</i>	68
<i>Physical Functioning</i>	68
<i>Stress</i>	69
<i>Potential Health Factors</i>	69
<i>Forgiveness</i>	70
<i>Empathy</i>	70
<i>Data Quantification</i>	71
<i>Personal Narratives</i>	71

	<i>Self-Report Measures</i>	72
	<i>Physiological Measures</i>	72
III.	RESULTS	75
	<i>Narrative Interrater Reliability Analysis</i>	75
	<i>Personal Narrative Data</i>	80
	<i>Quality of the Distressing Event</i>	81
	<i>Self-Report and Potential Health Factors</i>	81
	<i>Forgiveness and Empathy</i>	82
	<i>Physiological Functioning</i>	83
	<i>General Effects of the Narrative Interview</i>	83
	<i>Physiological Effects Across Segments</i>	84
	<i>Physiological Reactivity and Recovery</i>	84
IV.	DISCUSSION	86
	<i>Results Revisited</i>	86
	<i>Participant Variables and the Quality of the Distressing Event</i> ..	86
	<i>Physical and Psychological Health Factors</i>	87
	<i>Forgiveness and Empathy</i>	89
	<i>Physiological Responsivity</i>	90
	<i>Findings in Context</i>	94
	<i>Limitations and Future Directions</i>	97
	REFERENCES	100
	APPENDIX	133
	VITA	141

LIST OF TABLES

Table	Page
A-1. Results of Narrative Interrater Reliability Analysis	135
A-2. Means and Standard Deviations for Continuous Variables	136
A-3. Correlations Among Narrative Scales, Participant Variables, and Indices of Functioning	137
A-4. Mean Coherence and Richness among Categorical Health Variables	138
A-5. Summary of Regression Analyses for Variables Predicting Forgiveness and Empathy	139
A-6. Summary of Regression Analyses for Variables Predicting Physiological Reactivity and Recovery Scores	140

I. INTRODUCTION

Past experience exerts powerful influence over present functioning. Even for those uncomfortable with granting such authority to the past, there remains at minimum a belief that present functioning cannot occur in isolation from that which has preceded it. Within this concept, the terms *experience* and *functioning* are broad and interchangeable. Both refer to a nonspecific integration of perceptual, cognitive, emotional, and behavioral responses. The concept of a transaction between historical and current experience, or past and present functioning, is foundational in the behavioral sciences. Countless investigations have relied on some variation of it in seeking to demonstrate the cognitive, emotional, and behavioral impact of past experience. Several recent studies have provided evidence that the transaction can be quite powerful even when past experience is imagined, misperceived, or falsely recalled (Albarracin & Wyer, 2000; Berk & Anderson, 2000; Loftus, 2001; Ouellette & Wood, 1998; Thomas & Loftus, 2002). Although investigations that incorporate the transaction concept often view the past as impacting the present, other inquiries into human functioning have suggested that current experience has substantial influence of its own. Historical experiences themselves remain unchanged, but current cognitions, emotions, and behaviors can have powerful effects on one's memory, perception, and understanding of the past.

Given that the exchange between past experience and current functioning is vital in understanding behavior, diverse areas of study have wrestled with the transaction concept in theory and then turned their attention to empirical investigations. For example, the concept holds important implications for understanding the development and functioning of contingency models in behavioral and social learning theories. These

models describe how individuals form expectations of the potential consequences for their current and future behavior primarily based on repeated past experience.

Expectations then serve as an individual's personal theory or guideline in predicting the ways in which an environment will respond to his or her behavior. Despite having this common theoretical background, the level of empirical analysis employed to investigate contingency models varies greatly. The transaction concept is applied to diverse situations ranging from priming effects for perception (Sanocki, 1997), to parent-child interactions (Nichols, Gergely, & Fonagy, 2001), to relapse prevention (Helen, 1990).

One of the richest areas of study involving the influence of past experience on current functioning is that of interpersonal relationships. Most people can conceptualize an individual who as a result of experiencing a caring connection to a significant other comes to anticipate having similar connections in subsequent relationships. The individual may even actively seek out such qualities in others. An equally recognizable example is found in the individual who is betrayed after offering their trust to a significant other. Potential consequences include a reluctance to engage in new connections and a hypervigilance towards any indications of further betrayal. As trained observers of human behavior, psychologists recognize these patterns in our research subjects, patients, acquaintances, and even in ourselves. Understanding the complex processes underlying such familiar human experiences is a priority for researchers and clinicians alike. The empirical questions that have emerged in studying the transaction process in an interpersonal context have focused on two key elements. The first of these addresses the various ways in which individuals perceive, interpret, store, and recall their

original experiences. The second concentrates on how each of these activities come to shape subsequent experiences and functioning in relationships.

The field of psychology has made strides in documenting how the relationship between past experience and current functioning is affected by a variety of identified features related to development, personality, and behavior. Yet one of the greatest setbacks to understanding the transaction concept in an interpersonal context has been the difficulty of moving beyond isolated features of the process. Certainly there is a need for analyses at a molecular level that focus on the role of memory, social perception, script formation, response contingencies, etc. However, in order to gain a broader understanding of how current functioning is affected by past experience, and vice versa, these features need to be supplemented with a more molar level of analysis. The following investigation examines whether personal narrative provides a medium for just such an analysis. The thrust of the investigation is to examine the potential for personal narrative analysis to yield valuable information about the relationship between the construal of past experience and current functioning. Specifically, the study is interested in the relationship between individual differences in personal narrative form and current physical, psychological, and physiological functioning. Certainly any meaning making endeavor such as the construction of narrative depends on the transaction process between past and present to be operating at a variety of molecular levels. Processes such as perception, cognition, and memory are prominent among them. While these levels of analysis must be investigated, personal narrative may offer a useful index of these processes' combined effects at a level where one can begin to speak about the

relationship between a narrator's active construal of past experience and their current functioning.

Personal narrative has been widely studied across disciplines. At times the relationship between the construal of past experience and present functioning has been referenced, yet the current investigation seeks to make this connection more explicit. Given the immense variation in previous approaches to personal narrative, this concept as it is applied is first introduced and defined. Their general function is detailed through a review of relevant theoretical and empirical literature on topics of narration, representation, social cognition, and object relations. The problematic concepts of historical and narrative truth are also explored. In shifting from the topic of narrative function to that of narrative form, developmental aspects are reviewed given the significant contribution such work has made to understanding narrative as a construal of representations from personal experience. Attention is then given to current understandings of specific properties of narrative form relevant to the current investigation. The overall goal of the overall review is to describe the ways in which personal narrative not only serves a vital role in the transaction process but also lends itself as a measurable index of individual and group differences.

After surveying perspectives on the function and form of personal narrative, the review becomes more narrowly focused on existing research that demonstrates the impact of past distressing experiences on current functioning. The broad and specific effects of traumatic and distressing experiences, as well as the relationship between such experiences and their emotional and linguistic expression, are considered. This portion of the review concludes by focusing on the need to grasp the role of cognitive and linguistic

structuring of past traumatic and distressing experiences in order to understand better their influence on present functioning.

Finally, the review examines a growing body of research that has emerged concerning the physical and psychological benefits derived from the narrative expression of distressing experiences. Theoretical models of inhibition and expression are described given that they are identified in the literature as explanations for the mechanisms underlying the observed benefits. The most commonly studied narrative expression paradigm is then examined along with the range of areas to which it has been applied. Based on this review and an identified gap in the current narrative expression research, an original empirical investigation is presented. The investigation focuses on whether various indices of functioning are reliably related to particular features of personal narrative form. The primary goal was to explore whether individual differences in the narration of a past distressing experience of betrayal demonstrate a reliable relationship to current functioning across several domains. Following a description of the investigation's methods and empirical results, a discussion revisits the previously reviewed issues in an effort to situate the current findings in context and provide further direction.

Defining Personal Narrative

Narrative is often viewed as the primary form through which human experience is understood and made meaningful (Polkinghorne, 1988). Bruner (1986) suggested that narrative be considered one of two primary modes of thought. While the empirical mode seeks universal truth conditions and explanations of causality, the narrative mode seeks to understand human experience. The course of scientific inquiry has largely immersed itself in the empirical mode, often forgetting the narrative mode altogether and other

times relegating it to studies of discourse (Bruner, 1994). Von Wright (1971) argued that as a result of this dichotomy of analysis, science has arrived at a position of knowing little about how individuals understand their past experiences and make meaning out of complex interactions with the world.

For whatever lack of attention has been given to the narrative mode of thought in the history of scientific inquiry, current trends seem eager to recuperate the losses. An array of perspectives across fields of study has elevated the concept of narrative in importance for understanding human thought and behavior. Many now focus on personal narrative as a universal human endeavor, one in which individuals construct autobiographical stories of their experience to create order, derive knowledge, and assign meaning. Personal narrative is often portrayed not only as a figural mode of thought for understanding experience but as the primary or preferred method. The impact of this view has perhaps been most evident in the field of psychology given its focus on human behavior and experience. In addition, the links between personal narrative and ideas about language, memory, cognition, personality, and psychopathology, have served to solidify the concept within subspecialties of the field.

A full appreciation of the diverse, sometimes conflicted conceptualizations of personal narrative that exist within psychology is best obtained when the foundations of narrative thought are understood. Throughout its study narrative has been valued as a human construction where elements of one's experience are selected, interpreted, and organized into a unit that is structured and ascribes meaning (Braid, 1996). Thus, the term narrative denotes a universal process as well as its resultant form. Both aspects are linked with the capacity to know, understand, and consolidate experience. Despite the

universality of narrative's role in making experience comprehensible, formal investigations into this process were largely absent in psychology and the social sciences until recent decades (Shaw, 1997; Stahl, 1983).

Modern narrative theories and empirical investigations are in their infancy when compared to the longstanding appreciation for the role of narrative in discourse and oral traditions. For those disciplines where narrative plays a central role, shifts in conceptualizations tend to bring about significant changes. Given its concern for how meaning is expressed by an individual and then extracted by others, hermeneutic thought has influenced an array of narrative inquiries. Hermeneutic study brings attention to the circularity of interpretation where constituent parts of a narrative and the larger whole are dependent on each other for their viability (Ricoeur, 1984; Taylor, 1979). Single narratives are seen as constituent parts of the larger whole formed by their author. Each new narrative is shaped by the whole and in turn shapes it (Freeman, 1997; Ricoeur, 1981). Therefore, each narrative is viewed not as a static production or successive step but as part of a uniform, temporal sequence (Brooks, 1984; Ricoeur, 1984). These ideas hold clear connections to the transaction process between past experience and present functioning and have therefore influenced a variety of current narrative conceptualizations.

As the process of constructing narrative accounts of personal experience is increasingly seen as a universal, organizing endeavor of human experience, theorists in a variety of disciplines have attempted to account for this phenomenon. Within psychology, efforts to harness the narrative concept have reached a remarkable level. Some observers have suggested that the prevalence of its study is best explained not by

attempts to explore an important, untapped area but by narrative inquiry having achieved vogue status (Josselson, 1993). Despite the rapid growth of such inquiries and the incredible amount of differentiation and specialization that has accelerated narrative's conceptual evolution, there are certain fundamental assumptions that clarify these perspectives and their points of departure.

At their core, psychological approaches assert that what narrative does is assist in making experience understandable. Disagreement follows when considering the question of what exactly narrative is. On one extreme there are ambiguous, open perspectives that see narrative as interchangeable with the concepts of mind and culture (Howard, 1991). On the other end of the spectrum, more focused perspectives concentrate on specific features of narrative such as linguistic, acquisition, and stylistic differences. Certainly every broad aspect of experience or specific cognitive function cannot be equated with narrative. Although their answers lead to divergence, questions of what is and is not narrative, and why narratives are so central to our understanding of the world, unify the field's interest (Russell & Lucariello, 1992).

Traces of narrative emphasis can be detected within psychological thought from the formal inception of the field. Wundt's interest in consciousness was defined by efforts to understand the ways in which mental operations function during sensation and perception. Narrative was not his explicit focus, but the human capacity to make sense of experience in a way that facilitates verbal, descriptive responses was. Early in the 20th century, Stern (1910) and Adler (1924) suggested in divergent manners that the field should focus on individual psychology, particularly the functions and complexities of each person's unique experience. With such attention, the significance of individual

accounts of personal experience greatly expanded. This shift was heavily fueled by the impact of case descriptions in the clinical literature. Personal narratives received great attention through the provision of careful case studies in psychoanalytic writings. Not only was the patient's dialogue and subtle nuances of discourse paramount, but also the therapist's narrative account of the clinical encounter. Based on this common history, current narrative trends in psychology have preserved a focus on the individual's experience and a belief that personal narrative offers a medium through which knowledge about the individual can be accumulated.

The study of mental processes in general and consciousness in particular significantly diminished with the rise of behaviorism and its focus on observable phenomena. The subsequent emergence of a powerful cognitive trend in the field brought about a return to the study of human mental abilities. As a result, much work has been carried out regarding the cognitive activities that underlie sensation, perception, recognition, memory, and language (Polkinghorne, 1988). In addition, cognitive trends have brought about a stronger focus on the study of meaning by providing clear and accurate descriptions of the structures and forms that are inherent in human cognition. Personal narrative has accordingly become an essential concept for psychology given its ability to capture ideas about how individuals experience and make sense of the world from their unique perspectives (Funari, 1994).

Beneath the desire to define a new paradigm for psychology and perhaps the social sciences as a whole, many in the field have sought to make narrative a root metaphor (Sarbin, 1986). Its universality as an innate human ability and method of establishing meaning provides a sound basis for working to expand what is known about

narrative function, development, and form. Yet, Mishler (1995) suggested that the study of narrative should never become a distinct discipline or subdiscipline in its own right because its foundations are too broad. He argued that the door is better left open to the variety of approaches that theorists and researchers will continue to adopt. Among them though, psychology appears well suited to acknowledge commonalities in narrative inquiry, understand the storied nature of human thought and behavior, and proceed from there into respective areas of investigation (Sarbin, 1986). While these advancements and the popularity of personal narrative have contributed to a diversity of views in the field, each remains unified under the assertion that what they are describing is narrative. Such a sweeping application of the term is best avoided in the current investigation by providing clarification about the definition of narrative that is being employed.

Narrative Function

In defining personal narrative as it is applied in the current investigation, an important starting point lies in understanding the foundations of narrative thought while developing an appreciation for the various functions narrative performs in human life. Perhaps a valuable starting point is a fundamental perspective in the social sciences that humans strive to understand their experience of the world. Mink (1978) has suggested that other than theory and metaphor, only narrative has the capacity to make the flow of human experience comprehensible and communicable. It is this critical role that many see as the primary function of personal narrative.

Two opposing views have surfaced concerning the relationship between personal narrative and the structure of real world experience. Mink (1978) and White (1981, 1987) have outlined one view stating that experiences in the real world are inherently random

and meaningless. Events may unfold in a sequential manner but they have no intrinsic relationship to those that come before or after. This view holds that humans only confer meaning and significance upon experience by imposing their pre-existing structures or templates for understanding, which tend to be in narrative form. Thus, narrative is derived from the actual telling of the story, not from any meaning or order in the experiences themselves. The action of filtering and selecting which objects and events to sequence together is at the heart of this perspective. White and Mink argued that it is this process that allows humans to understand their chaotic experience and see it as coherent, continuous, and meaningful.

Carr (1986) has offered an alternative view. He suggested that human experience is not chaotic and meaningless because an inherent structure exists in the very act of perception. Carr stated that each event or object as it is perceived in the present is simultaneously being experienced in relation to past perceptions as well as those expected to occur in the future. In other words, both preceding and anticipated experiences provide a context through which current events and objects must be perceived. Therefore, narratives are not responsible for introducing meaning to a meaningless experience, rather they simply reflect the meaning, coherence, and sequencing that are inherent in the structure and content of perceptual processes.

Ricoeur (1991) has offered a compromise between these opposing views. He agreed that perceptual processes do have an inherent structure, or nascent narrative form, based on temporal and causal sequencing. However, he argued that these perceptions alone do not constitute the same level of structure found in personal narrative. The active creation of a narrative form is still a necessary process in order to configure one's

perceptions and experiences into a meaningful network. Ricoeur stated that the critical step in this process involves the application of language to perceptual processes. Each of the opposing views, as well as this middle ground, agree that narrative provides a basis for understanding experience. However, the divergence as to whether narrative is created within the individual, gathered from outside experience, or results from a combination of both, highlights many of the major divisions in defining narrative function.

Beyond understanding the relationship between narrative and the structure of real world experience, two other views on the general function of personal narrative emerge when considering the function of the stories humans tell about their lives. The broader of these holds that humans cannot avoid telling stories about their personal experience given that the narration process is inherently connected to the experience itself. The second focuses on the critical role narrative plays in helping individuals consolidate and cope with experiences that challenge existing knowledge structures.

The question of function when discussing personal narrative is perhaps less an issue for the numerous theorists who simply view the process as a reflexive, universal human endeavor. Many share Polkinghorne's (1988) view of narrative as the primary form through which human experience is understood and made meaningful. Narratives serve this role due to their ability to temporally organize experience and attribute intention to events and human actions (Wahler & Castlebury, 1997). Gergen and Gergen (1988) have similarly argued that while understanding the function of narrative is important, one must first grasp the close, inherent relationship that exist between narrative and experience itself. They suggested that our lives are absorbed in story form. As children we are inundated with narrative accounts given to us via novels, history,

folklore, myth, movies, theater, and television. Within this exposure and interaction we learn that stories are indispensable for making ourselves knowledgeable of and known within the social world.

In addition to the inherent, reflexive use of narrative across all experiences, there exists a particularly strong human impulse to create and communicate stories that deal with adverse life events (Neimeyer & Levitt, 2001). Personal narratives play an essential role in helping individuals account for problematic or distressing experiences in their lives (Gergen & Gergen, 1988). By synthesizing episodes of personal experience, narratives provide a sense of cohesion and temporal sequence that supplies answers to questions about events and one's action in the world (Brooks, 1984; Ricoeur, 1984). Efforts to formulate distressing experiences in storied form can at times break down, compromising one's ability to make sense of the past and give direction to the future. In addition, narrative is understood to function differently at various stages of assimilating problematic experiences (Stiles, Honos-Webb, & Lani, 1999). Immediately following a critical event, personal narratives may serve the function of a defensive communication utilized to avoid topics, offer deception, or speak of the experience in a way that is more manageable. As material moves closer to emergence and examination it may be narrated symbolically, through metaphor, or in parallel to similar experiences. Individuals can then begin the process of narrating out of alternative voices or positions in order to explore thoughts and feelings that are contradictory to their initial view. Personal narratives that have gone through these stages are able to provide the critical function of assimilating the problematic experience as a whole.

Representation. Extending outward from the elemental characterization of narrative as a universal mode of thought and disagreement about its relationship to experience, divergent conceptualizations about the function of personal narrative have become plentiful. Despite differences across theoretical lines, a central assumption made across perspectives is that an individual's mental representation of their experience serves as the basis for all subsequent narrative productions. The construct of mental representation is a central component in cognitive, social, developmental, and psychoanalytic theories (Blatt, Auerbach, & Levy, 1997). Not surprisingly, these same areas have been particularly concerned with the role of narrative in human experience. Representation is generally viewed as a process through which features of human experience take on an organized, structured form in mental or inner life. Thus, theories dealing with human experience and understanding, particularly those concerned with personal narrative, at some point are required to account for this important concept.

Various theories of representation all agree that humans build up stable mental or internal organizations that integrate aspects of experience. The raw materials and products of representation range from infants' categorization of simple objects (Stern, 1994) to knowledge of complex relational tendencies between concepts of self and other (Sandler & Rosenblatt, 1962). Representations are thought to contain cognitive, affective, and experiential components of both a conscious and unconscious nature. Yet, important questions remain about the nature of this process such as the degree of correspondence with external reality, the ease with which contents can be accessed, and the stability of representation over time. Divergent answers to these questions not only alter views on mental representation but also influence respective narrative conceptualizations.

Despite its status as a basic mental operation, it is difficult to define representation without being in conflict with one of the various perspectives on its functioning. Perhaps least offensive would be the idea that representation, like narrative, refers to both a process and its contents. The process component denotes the action through which elements of human experience come to occupy mental, or internal, space by being taken in and stored. The content component refers to the actual embodiment of these elements within mental or internal life. Representational theories disagree as to whether the content consists of a pattern of mental activity, symbolic forms, or weighted connections between units of processing (for a review, see Mandler, 1984). What is clear is that rather than static, disparate pieces of translated experience, the representation process and contents exist in an organized, structured, schematic form that serves as the basis for all later forms of processing (Abelson, 1981).

The concept of representation has undergone considerable transformation both on a semantic and conceptual level. Not unlike the narrative form it is hypothesized to produce, representation seems to be a universal feature of human thought, resulting from properties of perception and the human need to make sense of the flux of experience. Representation is therefore necessary for any realization or understanding of personal experience to occur (Funari, 1994). Two interlocking aspects of representation are thought to be operating when a given experience comes to occupy space in mental life. First, a stable mental organization of the contents of experience and their interactions is formed (Sandler & Rosenblatt, 1962). This step establishes an overall structure or sets of rules that reflect the relationship of one portion of experience to another. Second, various cognitive and affective valences accompanying the experience are integrated into the

structure (Sandler, 1994). It is the combination of the structural framework and valences that is believed to give rise to an internal mental world. This process reflects the idea that representation involves a translation of sorts where “pure” experience in the external world is altered before it is understood and assigned meaning by the individual (Beres & Joseph, 1970). The finished product serves as the basis of subjective experience, which is later called upon to assume narrative form (Ammaniti & Stern, 1994).

Even the most divergent approaches to personal narrative share a common understanding about the fundamental role of mental representation (for a sample of perspectives, see Bamberg, 1997; Bruner, 1990; Funari, 1994; Mahoney, 1991; Quasthoff, 1997; Schafer, 1989). Yet beyond its preliminary role in translating experience and creating mental content, the function of representation within personal narrative is more difficult to define. A prevailing idea asserts that one’s experience in the world is always subjected to the process of mental representation, which yields an inner world or cognitive map of these events. Whether one assumes that order is inherent from experience or contrived in the process, these summaries are heavily relied upon to make sense of previous and anticipated experiences (Sandler & Rosenblatt, 1962). Because most experiences, particularly those of an interpersonal nature, share basic features of their form and sequencing, individuals form prototypes for certain categories (Stern, 1985). Mental representation is therefore not simply a passive response to available stimuli, it possesses the capacity to dramatically influence one’s perceptions and experiences. By providing a filter through which all experiences must pass, mental representation and the personal narrative form it gives rise to allow the flux of experience to become understandable, meaningful, and predictive (Ammaniti & Stern, 1994).

Social Cognition. The concepts of mental representation and personal narrative have traditionally been incorporated into social cognition research, an area concerned with the ways in which humans think about themselves, others, and social situations. Ideas about narrative stem from research suggesting that mental representation and knowledge about social experience is schematic in nature (e.g., Fiske & Taylor, 1984; Higgins & Bargh, 1987; Markus & Zajonc, 1985). While some authors speak of specific schemas designed for understanding social experience, others have addressed a more circumscribed unit of knowledge called a script. The social script is a simplified schema that embodies knowledge of a stereotyped event sequence (Abelson, 1981). Script and schema concepts have thus provided researchers with a broad framework upon which they can begin to explore the more specific processes through which interpersonal experiences are perceived, interpreted, stored, and recalled.

Both the process of mental representation and its resultant contents in mental life are thought to be critical components of one's understanding of the social environment. In addition to allowing for knowledge about others and various social situations, the ability to create a mental depiction of interpersonal experience fosters an understanding of oneself in relation to these representations. However, Baldwin (1992) has suggested that social cognition research has largely failed to maintain the more molar templates of the mental representation and schema concepts by diverting resources towards isolated aspects of social perception. He argued for identifying the core units of knowledge in the process of representing interpersonal experience. These units, or relational schemas, are "cognitive structures representing regularities in patterns of interpersonal relatedness" (p. 461). Certainly the notion that human relationships somehow become internalized or

mentally represented, is not a new concept. Bowlby (1969) had decades earlier described the individual's creation of an internal working model based on repeated interpersonal experience. Others have offered similar cognitive models under the titles of interpersonal and relationship schemas (Miell, 1987; Safran 1990). Each model suggests that cognitions about relationships contribute substantially to an individual's understanding of interpersonal experience above and beyond the contributions made by knowledge of self and other in isolation.

Baldwin (1992) described relational schemas as fluid, working models of interpersonal relationships and delineated two distinct processes active in their formation. First, the schemas are based on the acquisition of new information over time. This process parallels the central tenets of social learning and contingency theories, which hold that individuals develop expectancies about cause and effect relationships based on past experiences. As experiences are repeated over time, the mental representations of social information are subject to expansion and revision. Relational schemas thus serve as a field guide of sorts to navigating one's social world. The second process at work is the ability of such accumulated experience to shape the construal of new social experience. Mental representations of past experience act not only as a bank of information but also as a template through which all new information is viewed, interpreted, and represented (Applebee, 1978). Numerous studies have indicated that schematic knowledge often directs the selectivity of perception, interpretation of ambiguous stimuli, preferential recall of information, and inferential extrapolation of missing data (e.g., Cantor & Mischel, 1979; Cohen, 1981; Miell, 1987; Sagar & Schofield, 1980).

Scripts and schemas are thought to result from the human quest for knowledge that can be applied to make social situations more predictable. Seeking such understanding leads to the development of prototypes for a variety of possible situations that allow one to anticipate how an event will proceed based on previous experience (Cantor, Mischel, & Schwartz, 1982; Trzebinski, 1985). Knowledge about the social world is likely structured in much the same way as other information represented from experience (Cantor & Kihlstrom, 1985; Kihlstrom, Cantor, Albright, Chew, Klein, & Niedenthal, 1988). Social scripts and schemas embody procedural knowledge or rule-based categories and specific sequences of events. The broader range of abstract knowledge and personal narrative-based understandings are additionally derived from declarative knowledge about the social world.

Beyond the numerous scripts and schemas individuals form about their social experiences, the role of acquired and construed information about self plays a significant role in social cognition research relevant to representation and narrative. Markus (1977) suggested that self-schemas are cognitive generalizations based on repeated categorizations of one's behavior by self and others. Self-schemas derive from repeated experiences of giving and receiving feedback about one's own actions. Over time this collection of information gives rise to a greater understanding of one's goals, incentives, plans, and patterned behavior (Markus & Wurf, 1987). Other authors have suggested that gathered and represented information about the self in social environments leads to the construction of an implicit self-theory or a personal view of reality (Epstein, 1973; Gergen, 1971; Schneider, 1973). This organized body of knowledge serves as a basis through which individuals view their social experience in an effort to understand the

actions of others. Inherent in each of these perspectives is a social cognition version of the transaction concept where knowledge about self and the processing of new interpersonal experience is linked to one's historical representation and narration of personal experience (Carr, 1986; Freeman, 1993; Kerby 1991).

Object Relations. Social cognition research has taken the lead in investigating the various ways in which mental representations of interpersonal experience are perceived, interpreted, stored, and recalled. Beyond the development of schematic knowledge about self and other, this area has examined how patterns of interactions in relationships come to be mentally represented, understood, and applied to new experiences (Ginsburg, 1988; Planalp, 1987). However, the issue of how represented information about past interpersonal experiences shapes current functioning has long been studied in the area of object relations. Consequently, a brief overview of this domain sheds considerable light on the role that a historical understanding of one's relational experiences plays in the function of personal narrative.

Many psychoanalytic and psychodynamic theories emphasize the significant role that past interpersonal experience plays in shaping character style and personality. Among them, object relations models pay particular attention to the development and maintenance of one's understanding of self, other, and the space in-between (Mitchell, 1988). These models suggest that such knowledge comes only through internalizing or mentally representing a matrix of previous relationships (Fairbairn, 1954; Greenberg & Mitchell, 1983; Guntrip, 1961; Winnicott, 1965). These experiences are based on an image of the other, an image of self interacting with the other, and the feelings or wishes involved (Kernberg, 1976). The motivation to learn about self, other, and interactions

stems not only from human tendencies to seek understanding but also from a strong desire to alleviate anxiety surrounding interpersonal experience (Fairbairn, 1954; Klein, 1964; Mahler, Pine, & Bergman, 1975). Likewise, there exists an adaptive significance of the child's developing internal working models based on significant attachment relationships to reduce their stress and anxiety related to issues of survival (Bowlby, 1969).

Beyond the development of sense of self, representations of past relational experiences are also seen as the key element in shaping the perception of one's current relationships. Freud (1905/1953; 1912/1958) first addressed this issue as it arose in a therapeutic context with patients. He noted that the phenomenon involved an intense emotional relationship between the patient and analyst that could not be accounted for by the actual situation alone. He argued that the transference, or application of past experience and affect onto current situations, required that the patient's perception of present events be distorted in service of previous ones. Object relations models subsequently applied Freud's understanding of transference in all interpersonal encounters by describing the influence of past interpersonal experience on current relations. The internalization or mental representation of significant relationships and experiences has since become increasingly figural in structuring theories about the development of personality and psychopathology (Blatt & Lerner, 1983; Mitchell, 1988). Object relations theories view an individual's character structure as being largely determined by the nature and quality of their past relationships. These experiences are not of importance in their entirety. Instead, the residue or elements of the relationship that the individual selects out and internalizes are most significant.

The processes and concepts delineated in various object relations models are gradually being incorporated into cognitive models of mental representation and information processing. Sandler and Rosenblatt (1962) laid the groundwork for such a synthesis in summarizing psychoanalytic perspectives on how individuals organize their interpersonal experiences into representational worlds that then affect their interpretations of and responses to new experiences. Psychoanalytic and object relational views on internal representation and transference processes are in essence descriptions of how organized sets of beliefs about self and others are created and then applied to subsequent experiences (Singer, 1985). Aspects of transference and the internalized representation of significant relationships thus share features with the theorized schema and script concepts in social cognitive research and the broad concept of transaction between past experience and current functioning.

The Trouble with Truth

Regardless of the approach taken to examining mental representation and the function of personal narrative, questions inevitably arise regarding the topic of truth. The primary issue involved is whether the mental representation, schematic knowledge structures, and personal narratives that emerge from experience should be viewed as historical truth or as independent of such veridicality given that they are creative acts. A popular tactic to answering this question is to adopt a social constructionist view that disregards ideas of an objective, external, historical truth when considering an individual's experience. By comparison, a more muted approach is that of the narrational view, which holds that the historical past can be reliably reconstructed in one's representation and narrative but it can never be fully recovered. This view has been

adopted by many investigators of personal narrative largely to set themselves free from any ties to what might be perceived of as naive realism in dealing with autobiographical memory. But given the growing attention being directed towards the area of personal narrative there is a need to more explicitly address the issue of historical truth.

Research in a variety of areas suggests that the personal narratives individuals form about their experience have questionable historical validity (e.g., Henri, Moffitt, Avshalom, Langley, & Silva, 1994; Loftus, 1993; Mazzoni, Loftus, & Kirsch, 2001). Representation and narrative productions are more akin to a working, fluid impression of one's experience than an unerring reproduction. But the fact that one's representations of the world and narrative accounts of experience are malleable should not detract from the narrator's inherent value commitment to truth. The effects of calling the historical validity of personal narrative into question have been considered by Spence (1982, 1986, 1987) and Schafer (1980a, 1980b, 1983, 1992). Their epistemological views of representation and narrative carefully weigh the clinical implications of various ideas about truth, yet their work remains largely unintegrated into current understandings of mental representation and personal narrative within the field of psychology.

Spence (1982) related human memory to other efforts at documenting personal experience. He argued that one's original perception of an experience is similar to a photograph. However, perceptions are fleeting and soon must be mentally represented if they are to be preserved. Spence compared this process of representation to the process of a photographer quickly creating a sketch of his photograph before destroying it. Therefore, when individuals produce personal narratives in recalling a historical experience, they remember neither the actual event nor its original perception. What is

recalled is a created mental representation of the two. Spence went on to assert that even this approximation is clouded by another step in abstraction. Much like the sketch of the initial photograph can weather or change over time, the representation of an original perception of an experience is vulnerable to transformation (Spence, 1986). As a result, memories and personal narratives are best viewed as descriptions of fluid representations that at some point in the past were based on subjective perceptions of external events (Genovese, 1994). Schafer (1983) raised a similar argument in extending Spence's metaphor, noting that each narrative generated in a given moment will only be one version of the accessed mental representation. At best, personal narratives can only spy on the inner representation of an experience and offer abbreviated messages about what was briefly glimpsed.

These perspectives on the nature of memory and the consequences for how we conceptualize mental representation and personal narrative raise additional questions about the process of personal narrative construction. Spence (1982) stated that historical truth is not simply out of one's reach, but as creators of representation and narrative, it is unknowable to humans. He suggested that our value commitment to truth is rooted not in uncovering old memories but in constructing new ones, a process he described as the construction of narrative truth. Elsewhere Spence (1987) asserted that there is no need for despair over our inability to directly access representation or representation's inability to precisely capture historical truth. Narrative truth produced in this manner is just as important, and in being the only truth available, it must be sufficient. The task for the narrator is to embrace a different notion of truth, one which is defined not by historical accuracy but by internal coherency, consistency, plausibility, and significance.

Many of these presented arguments are a muted version of a more stringent post-modern position that holds all versions of mental representation and personal narrative as subjective and equally valid. Such a position relies on the problematic logic of relativism and raises concerns over its implications for interpretive criteria. In particular, if each personal narrative is only one of many equally valid ones, can they in any way be differentiated? If not, then where are distinctions drawn between reality testing and delirium, honesty and deception, exploration and confabulation? Proponents of this more narrow, relativistic position typically respond that narratives can be differentiated by considering validity within their own systems, meaning their internal consistency and comprehensibility (Schafer, 1980a, 1980b, 1983; Sherwood, 1969). But certainly narratives formed as fabrications or deliriums often possess these qualities as well. This issue has forced some to invoke the additional use of a sort of refined common sense in differentiating narratives, an idea that seems to be an especially problematic solution (Schafer, 1992). More balanced approaches have simply acknowledged that having multiple versions of the narrative based in subjective representation does not prevent differentiation based on adaptiveness, functionality, purpose, and a collective notion of truth (Genovese, 1994).

Narrative Form

The process of mental representation factors heavily into the ultimate function of personal narratives. In acquiring information from personal experience about self, others, and the relationships that occur between the two, individuals develop internalized, schematic knowledge structures that color their future experiences and acquisitions of new information. Regardless of whether these structures are referred to as internalized

object relations or relational schemas, the question remains as to whether these representations map onto differences in the actual narrative form. In beginning to address aspects of personal narrative form that are of interest in the current study, this section begins by reviewing the literature for narrative development across childhood. A brief overview of the current research in this area adds considerably to our understanding of the form that personal narratives assume in adult experiences. Attention will then shift to the general purpose and specific roles of two key properties of personal narrative form, that of coherence and richness.

Personal Narrative Development. While personal narratives and the underlying process of mental representation are intrinsic to our adult experiences, even brief interactions with young children reveal that these abilities and skills are not fully developed at younger ages. Instead, the ability of children to create, communicate, and modify personal narratives is constantly changing. A wide array of investigations in cognitive, developmental, and psychoanalytic areas have suggested that children construct representational schemas of self and others based on interactions with caregivers, and that these schemas then coordinate and guide a range of subsequent behaviors (e.g., Ainsworth, 1982; Bowlby, 1969, 1973, 1988; Fonagy, Steele, & Steele, 1991; Mahler, Pine, & Bergman, 1975; Main, Kaplan, & Cassidy, 1985). This broad view combines social cognitive and object relational approaches to the mental representation of personal experience and its ability to influence the perception of future experiences. Given the recognized role of representation and schematic knowledge structures in studies of child development, the remaining task is to specify the role that expanding personal narrative abilities and skills play in this process.

Nonverbal studies of infant and toddlers have suggested that they form temporally and causally organized mental representations of experienced events (Fivush & Haden, 1997). While debate exists as to whether the organization of such representations is a function of the experience itself, most recognize that the child actively adds a level of comprehensibility that cannot be derived from the experience alone. At younger ages this additive component may be as simple as a purposeful structuring of representations. But with the emergence of verbal skills, personal narratives rapidly assume the role of making event relations comprehensible, specifying temporal and causal connections, describing internal states, and ascribing individual meaning and significance to experiences (Hudson & Shapiro, 1991). In addition, personal narrative introduces an interpersonal component to the acquisition and construal of experience (Haden, Haine, & Fivush, 1997).

Parents and children begin discussing past experiences together almost as soon as language appears (Eisenberg, 1985; Hudson, 1990). Children as young as 2 spontaneously recount information about novel, one-time past experiences as part of their regular interactions with caregivers (Fivush, Gray, & Fromhoff, 1987; Miller & Sperry, 1988; Peterson, 1990). By the age of 3 these communications begin to emerge in the course of natural conversations with peers and teachers, yet they remain fairly rudimentary in form (Applebee, 1978; Umiker-Seboek, 1979). Shortly after beginning to share this information with others outside of the caregiving relationship, a shift occurs in the form of related experience. Children become able to give generalized, well-organized verbal accounts of routine and familiar events such as going to school and grocery shopping (Nelson, 1986; Nelson & Gruendel, 1979). The emerging generality of these accounts allows the child to narrate about topics that are not simply specific to one

experience and to speak about the routines outside of personal accounts (Fivush & Haden, 1997). Children at this time also more easily relate experiences in a temporally coherent order (Fivush & Hudson, 1990; Hudson, Fivush, & Kuebli, 1992). Beyond this important stage, children's narratives become more lengthy, interactive, evaluative, and provide a greater variety of orienting information such that the overall coherence and detail of the story improves considerably (Menig-Peterson & McCabe, 1978; Miller & Sperry, 1988; Peterson & McCabe, 1983).

In addition to the developmental progression of children's personal narratives, research has suggested that the ways in which adults talk about past events with young children influences their understanding of these events (Fivush, 1991; Hudson, 1990; McCabe & Peterson, 1991b; Reese, Haden, & Fivush, 1993; Snow, 1990; Tessler & Nelson, 1994). Evidence also suggests that the structure of children's narratives reflect the ways in which these experiences are structured in the world (Fivush, Kuebli, & Clubb, 1992; Ratner, Smith, & Padgett, 1990). These two factors give authority to the mental representation process and the actual experience itself in shaping the form of the children's personal narratives. Vygotsky's (1978) zone of proximal development and Rogoff's (1990) model of guided participation provide conceptual frameworks for understanding how these two factors operate. Each of these concepts refers to the interplay between the skills and characteristics of the developing child and those of a more skilled and experienced caretaker. While the experiences themselves provide the raw material and thus establish some limitations on how this information is represented and organized, the shared process of narrating with a more experienced adult grants

considerable leeway in determining the form and properties of the finished narrative product.

On a more theoretical level, cognitive and developmental researchers disagree as to the driving force behind personal narrative development. One view holds that personal narratives change in form, frequency, and content over the course of childhood because language skills are developing in ways that directly impact these communications. Given that personal narratives are known to be determined by many factors outside of linguistic skills, it seems logical that linguistic development alone would not drive personal narrative development. A second view states that changes in personal narrative across developmental years reflects underlying changes in the ways that children are mentally representing their experiences. Results of studies applying nonverbal assessment techniques to documenting children's event knowledge indicate that younger children do indeed show less sophisticated and less complex understandings of their experiences (Fivush, Haden, & Adam, 1995; Fivush & Mandler, 1985; Price & Goodman, 1990; Ratner, Smith, & Padgett, 1990). The evidence suggests that personal narratives of experiences, as well as the representations on which narratives are based, become increasingly structured, flexible, and complex across development.

Coherence. Humans appear driven to acquire, represent, and construe experience into knowledge structures that are functional and communicable. Coherence is often thought to be the primary quality underlying the utility of such structures. As a result, examinations of personal narrative form often begin with an appreciation for the quality of narrative coherence. Gestalt psychologists have suggested that personal narratives play an essential role in human life in that they allow for a synthesis of the many facets of

one's experience into a coherent, understandable whole (Kohler, 1947). Although elements of the quest for coherence are evident in even rudimentary functioning of perception and cognition, this emphasis at the narrative level is thought to be uniquely motivated by a desire to understand one's own experience and to be understood by others (Hobbs, 1979).

Successfully conveying a personal narrative to another person requires a certain degree of coherence arising from several characteristics including clarity in major points, inherent structure, sequencing, causal explanations, and the absence of tangential or irrelevant information (Labov & Fanshel, 1977). Grice (1975) proposed that one of the primary maxims of all conversational interactions is that the speaker be coherent in their communications. It is the responsibility of the individual while narrating to build a clear, logical explanation for their account, to track the listeners' understanding, and to make adjustments as necessary. While individuals can receive direct feedback from listeners regarding their understanding of the personal narrative, coherence is not often evaluated in this manner. Instead, individuals tend to rely on their empathic understanding of what listeners would or would not be able to follow. The creation of narrative coherency for the benefit of others likely arises out of one's need for a sense of coherency in their own experience. The planning, monitoring, and adjustments required facilitate the narrator's ability to examine and consider aspects of their experience in a manner not available through self-reflection alone (Clark, 1993).

Individuals have considerable leeway in adjusting the coherency of their personal narratives, yet they are somewhat limited by the represented experience that makes up its contents and by the environmental conditions that provide the venue for its recounting

(Gubrium & Holstein, 1998). Although the later of these will not be a focus of the current study, the former is of primary concern. Coherence may in fact be undermined by novel experiences that run contrary to one's beliefs about self and other (Horowitz, 1986; Janoff-Bulman, 1989; Taylor & Schneider, 1989). Several recent studies of children's personal narratives regarding distressing experiences bear this out. Among them, Peterson and Biggs (1998) found that children who were more distressed by a particular experience produced far less coherent accounts of events than children who were not as distressed.

A body of research has recently emerged that may have implications for investigating the correlates of narrative coherence. Although these investigations do not directly examine coherence in personal narrative productions, they do focus on individual's self-reported "sense of coherence" (SOC), or their confidence in the predictable, understandable, and structured nature of their experienced environment (for a review, see Antonovsky, 1998). The SOC construct focuses on an individual's belief in their ability to meet the demands of the environment and to interpret demands as challenges worthy of investment (Antonovsky, 1987). SOC is often conceptualized as a trait variable that allows an individual to maximize coping resources to a particular challenge or distressing situation based on established knowledge and an increased ability to recognize and predict contingencies.

Research examining individuals' self-reported SOC has found the construct to be a strong predictor of health outcomes and life satisfaction in adults (Callahan & Pincus, 1995; Sagy & Antonovsky, 1992; Steiner, Raube, Stuck, & Aronow, 1996). In addition, greater SOC has been shown to be significantly correlated to reduced physiological

reactivity to a lab stressor (McSherry & Holm, 1994) and less subjective distress following stressful life events (Kaiser, Sattler, Bellack, & Dersin, 1996; Motzer & Stewart, 1996; Mullen, Smith, & Hill, 1993). A recent study by Jorgensen, Frankowski, and Carey (1999) documented the possible salubrious effects of SOC on the health appraisals of young adults experiencing recent stress. The study reported that SOC was inversely correlated with the number of experienced negative life events as well as reported psychological symptoms. Additional research has even suggested that a high SOC and positive mood serve to bolster immune functioning in adults facing a stressful life situation when compared to those with a low SOC (Lutgendorf, Vitaliano, Tripp-Reimer, Harvey, & Lubaroff, 1999). Whether or not self-reported SOC bears any relationship to coherence in personal narrative accounts is yet to be determined. However, the research thus far offers important clues suggesting that individuals' ability to view personal experiences as structured and understandable is related to their physiological reactivity, stress, physical symptoms, and general satisfaction.

Specific research on the topic of personal narrative coherence has been largely confined to the area of attachment. These researchers have generated considerable interest in the impact that narrative development has on adult functioning and a caregiver's ability to provide a positive attachment experience for their child. Adults' representations of their own past attachment experiences appear to function as an internal model, or guide to making sense of their current parenting experiences (Main, Kaplan, & Cassidy, 1985; Mandler, 1984). Main and colleagues provided a widely accepted research paradigm for assessing an adult's mental representation of their childhood attachment experiences (for a review, see Hesse, 1999). The Adult Attachment Interview (AAI) is a

semistructured interview that evaluates mental representation based on the content and structure of personal narratives (George, Kaplan, & Main, 1985). The AAI is based on the assumption that autobiographical memory is an active process of constructing one's ideas about past experience using new information (van IJzendoorn, 1995). The structure, style, and content of these memories, as they are produced in narrative form, is then thought to provide information relevant to the quality of early childhood experiences.

The nature of an individual's attachment representation is understood to manifest in the coherence of his or her discourse during the AAI (Main & Goldwyn, 1993). Ratings of the coherency of narrative responses allow for classification of an adult's attachment style and previous caregiver experiences (Bakermans-Kranenburg & van IJzendoorn, 1993). Perhaps the most significant findings to date using the AAI are those demonstrating that an individual's ability to organize and present a coherent personal narrative about his or her attachment experiences influences how that individual interacts with his or her children (Fox, 1995; Main & Goldwyn, 1992; van IJzendoorn, 1995). In the case of attachment, potent past experience has a significant impact on the way in which relevant new information is processed, understood, and acted upon.

Richness. In addition to studying variations in structure and coherency of personal narratives, growing emphasis is being placed on understanding individual differences in narrative style. There is a consensus among researchers that in addition to structural variations, individual differences in the composition of personal narratives may shed light on the larger function of narrative in consolidating and communicating personal experience. Importantly, such differences in styles of recounting personal experience appear to occur independent of structural qualities such as coherence.

Outside of coherence, the construct of narrative richness has emerged as the most often researched area of individual differences in narrative form. For the purposes of this review, the term richness refers to variations in elaboration and is assumed to reflect the narrator's personal investment in the narrative, or their willingness to situate events and actions in a more specified context of time, place, and character. Richness captures the narrator's desire to provide the audience with a subjective evaluation of the described experiences (Castlebury, 1998). In contrast to coherency, richness suggests a willingness on the part of the narrator to engage the other through relating information that may be unnecessary in clearly presenting the personal narrative's main points (Rogers, 2000). Thus, richness has the potential to make contributions to both the narrator and the listener's understanding of the related experience. Rich, elaborative constructions of one's personal experience may denote a more complex mental representation. Individuals who relate particularly rich narratives are able to contextualize the described events while providing their subjective views of the experience.

Much of the impetus for research into individual differences in personal narrative richness originated out of developmental psychologists' interest in narrative form variations among parent-child dyads. Observations of the ways in which parents talk to children about past experiences have consistently highlighted two distinct styles of joint narration relevant to the richness construct (Fivush & Fromhoff, 1988; McCabe & Peterson, 1991a; Nelson, 1981; Reese & Fivush, 1993). One group of adults, referred to as the "high elaborative" or "topic extending" individuals, hold long, detailed conversations while co-constructing personal narratives with their children. They provide a considerable amount of embellishment while situating events or actions in a broader

experiential context. As a result, they tend to elicit greater amounts of information from the children with whom they narrate. The other group of adults, referred to as the “low elaborative” or “topic switching” individuals, hold short conversations while co-constructing personal narratives that tend to focus on a specific aspect of the event or action. They contribute little description or elaboration during the narration process and tend to ask repetitive question of the children rather than eliciting new information.

The differentiation of richness or elaboration styles presents several interesting observations but it does not provide direct information about the significance of narrating in this manner. However, several studies have since indicated that when children actively participate in jointly constructing rich and highly elaborative personal narratives about their experience, they later are able to produce equally detailed narratives on their own (Haden, Haine, & Fivush, 1997; Peterson & McCabe, 1994). Similar findings have suggested that by repeatedly co-narrating with a high elaborative style adult, children develop the ability to recall more information from their experiences and incorporate such detail into richer original narratives (Reese, Haden, & Fivush, 1993). These benefits appear to be relatively stable over time and occur even when the discussed event is an anticipated one (Eisenmann, 1997). Research that has taken a broader approach to understanding personal narrative richness has suggested that while this quality of form is strongly correlated with the investment an individual places in the narrative construction, it is not related to the general complexity of the narrative (Lavelle, 1997). For example, Porath (1996) found that the narratives of gifted children were distinct in terms of their use of elaborative structures when compared with same age peers, but their narrative

performances showed no differences in plot organization or complexity. Narrative richness and elaboration appear to function independently of coherence and structure.

Certainly richness and elaboration can add to the structure and coherence of a personal narrative, but findings suggest that this role diminishes markedly when the topic of the narrative is a negative, distressing event (Hudson, Gebelt, Haviland, & Bentivegna, 1992). In contrast to positive events, personal narratives of distressing experiences appear to rely more on sequencing, relevance, and clarity to achieve a coherent, organized structure. In a recent study of children's narrative accounts of distressing injuries, Peterson and Biggs (1998) found that when subjective distress increased the children's personal narratives contained fewer evaluative and elaborative propositions. The authors suggested that this pattern of decreased richness resembled the affective flattening observed in many acute and traumatic stress responses. Such a finding is troubling given that distressing and traumatic experiences have long been thought of as particularly complex events that require a greater degree of examination and consolidation in order to promote understanding and the creation of personal meaning. Rich personal narratives have the ability to more fully convey the complexities of one's experience and promote a greater recall of information. The absence of such properties among personal narratives of distressing events seems especially problematic, but it may signal a needed sacrifice of richness for the sake of coherency when individuals attempt to reconcile distressing experiences with existing knowledge.

Distressing Experience and Responses

The transaction between past experience and current functioning is perhaps most evident in the case of distressing or traumatic events, which appear to have particularly

negative consequences. Personal narrative serves to consolidate knowledge, increase predictability, and make experiences understandable. When the original experiences in question are of a distressing or traumatic nature, the function and form of personal narrative can be altered considerably. Yet questions remain concerning exactly what happens to the routine processes of representation and narration when the experience does not lend itself to being easily represented, assimilated into existing knowledge structures, and narrated in a comprehensive manner. Initial research suggests that the coherence and richness of personal narratives are significantly affected when the narrative deals with experiences that are distressing and outside one's normal expectations.

In order to establish further the foundation of the current investigation, this section of the introduction will address the nature of distressing experiences and the consequences of potential responses. This area offers fertile ground for expanding knowledge about how the function and form of narrative relate to aspects of representation, memory, and functioning. The general impact of distressing experiences on human functioning is first addressed with regards to the challenges posed by such events to preexisting representation and knowledge structures. The form and consequences of two types of responses to distressing experiences is then reviewed. The section next focuses on the potential shortcomings of cathartic expression while examining the powerful role of language and cognitive structuring in the therapeutic expression of negative experiences. The section concludes with consideration of the role that forgiveness and empathy might play in this relationship when the distressing experiences in question are interpersonal in nature.

The Impact of Trauma and Distress

Traumatic and distressing experiences are by definition outside of one's expectations. Their details and outcomes often challenge well-established personal beliefs about self, others, and the surrounding environment, while prompting feelings of doubt, insecurity, and disbelief. As a result, such experiences are not easily integrated into existing mental representation and knowledge structures. Pathological reactions to acute experiences of stress are thought to be generated from the combined effects of several sources. Among them, genetic predispositions, timing of critical developmental periods, and pre-existing conditions contribute heavily to whether or not a given experience promotes a negative reaction. Yet another significant role is played by the appraisal of distressing and traumatic events (Marshall & Garakani, 2002). Preexisting mental representations and knowledge structures, which have their basis in cortical and subcortical neural networks, significantly alter the ways in which new experiences are perceived, understood, and assimilated. Because this process can be particularly conflicted when the new experience runs contrary to acquired information from the past, successful coping and integration often rely on a thorough processing of the experience (Foa, Roghbaum, & Molnar, 1995).

The memories and mental representations for traumatic and distressing experiences are unique in several ways. Memories for ordinary events are largely declarative in nature and thus are easily incorporated into verbal accounts. Memories for distressing events are more visual, olfactory, auditory, and kinesthetic, tending to arouse more intense emotional responses. Van der Kolk and van der Hart (1991) have suggested that the emotional arousal connected to these experiences is what prevents memories and

representations of the event from being integrated and naturally progressing to the personal narrative form. These memories are instead stored in a disorganized fashion as sensory perceptions, obsessional ruminations, or behavioral reenactments (Foa & Riggs, 1993). Their encoding is altered by the attentional and hippocampal memory functioning known to occur during states of high arousal (van der Kolk, 1994). As a result, the emotional arousal itself becomes represented in memory structures (Foa & Kozac, 1986). Recounting the experience can then bring on similar emotional and physiological states, just as these states can prompt the recall of the experience.

One of the hallmarks of distressing and traumatic experiences is that the mental representations of such events often lack the declarative knowledge that is most suitable for rich and coherent personal narrative forms. This has led some researchers to suggest that the psychological and physiological dysfunctions observed with traumatic and distressing experiences originates not from the memory for the event itself but from the intrusive symptoms, avoidance, and hyperarousal that have become an inseparable part of nonverbal remembering (McFarlane, 1992). In a study examining the short-term autonomic correlates of discussing personal trauma experiences, narrating about traumatic events was related to increased cardiovascular reactivity and recovery when compared to talking about trivial events (Pennebaker, Hughes, & O'Heeron, 1987). These findings suggested that physiological arousal becomes part of the recall of distressing experiences. However, important research has also begun to document that for some individuals, the lack of physiological response may be equally telling.

Individuals with a diagnosis of Post Traumatic Stress Disorder (PTSD) are defined by their combined reexperiencing of a traumatic or distressing experience and

their avoidance of related stimuli. These individuals experience marked changes in physiological arousal that persist outside of obvious moments of recall such as a higher resting ambulatory heart rate and blood pressure (Muraoka, Carlson, & Chemtob, 1998). Cohen et al. (1998) found that the recall of a stressful event elicited a significant autonomic response from control subjects but little to no response from those with PTSD. Individuals with PTSD type reactions to distressing and traumatic experiences presented with a degree of autonomic dysregulation at rest that was comparable to that seen in the control subjects' reactions to the stressful situation. What is clear from these findings is that physiological arousal is a key component of the mental representation of traumatic and distressing experiences for all individuals. However, reactivity to recall of these experiences such as occurs during narration may not be as negative of an indicator as once was thought. In fact, more reactive individuals may experience less autonomic dysregulation during resting states and have greater access to declarative knowledge of the traumatic event.

Repression Responses

If the mental representation, memory, and narrative recounting of distressing experiences are marked by greater degrees of sensation, emotion, and physiological arousal, then what effect does the expression of distressing experiences have on the individual? One perspective on this question emerges from studies that have examined potential detriments posed to individuals who demonstrate a repressive or inhibiting coping style. Pennebaker (1989) offered a psychosomatic theory of inhibition or repressive coping in which he described the active holding in of thoughts, feelings, and behaviors in response to distressing experiences as a form of psychological and

physiological work. He argued that such work leads to dysregulated autonomic nervous system activation, which can often serve as a cumulative stressor over time. This model and others like it draw on evidence that individuals experiencing distressing and traumatic events are more likely to report current health problems and depressive symptoms if they had not disclosed their experiences to others (Burnum, 1991; Pennebaker & Hoover, 1986; Raphael & Dohrenwend, 1987). Larson (1990) also found that the active concealment of personal information that is perceived as negative or distressing was significantly correlated with self-report measures of anxiety, depression, and physical symptoms. In this study, self-concealment accounted for a significant amount of the variance in general physical and psychological symptoms even after controlling for the occurrence of trauma, related distress, social support, and self-disclosure.

Other investigations have focused more explicitly on the relationship between physical health and repressive coping in response to distressing experiences. Individuals who cope repressively and are reluctant to disclose have been found to have higher cancer rates (Kissen, 1966), elevated resting and reactive blood pressure levels (Davies, 1970; King, Taylor, Albright, & Haskell, 1990; McClelland, 1979), and increased rates of physical disease (Blackburn, 1965) when compared to more expressive individuals. Pennebaker and O’Heeron (1984) demonstrated that the spouses of suicide and accidental death victims most likely to become ill in the following year were those who had not confided in others about their experiences. An additional study found that those individuals who reported experiencing any type of trauma that was not discussed with others also reported having greater numbers of diagnosed health problems such as

hypertension, cancer, and bouts of influenza (Pennebaker & Sussman, 1988). Repressive coping has also been linked to impaired immunological and endocrine functioning, as well as increased reactions to prescribed medications (Barger, Marsland, Bachen, & Manuck, 2000; Esterling, Antoni, Kumar, & Schneiderman, 1990; Jamner, Schwartz, & Leigh, 1988). The broad implications of such findings are clear. While the direct expression of distressing and traumatic experiences might have immediate effects on current functioning, repressive responses carry the potential for negative consequences that are far less transitory.

Expression Responses

Although a wide variety of physiological and psychological detriments have been researched in connection to repressive responses to distressing experiences, investigations focusing explicitly on the benefits of expressive responses has only recently emerged. While a direct relationship between expression and positive physical and psychological health signs seems intuitive, this inference requires empirical validation. Individuals who more openly express negative emotions do tend to have lower autonomic arousal overall (Goldstein, Edelberg, Meier, & Davis, 1988). The mechanism of action in this relationship appears to involve the act of verbally labeling an emotional experience in order to reduce the associated physiological responses (Berkowitz & Troccoli, 1990; Keltner, Locke, & Audrain, 1993). Along these lines, Greenberg and colleagues have conducted several studies indicating that individuals who disclose severe traumas have fewer physical symptoms in the months following these experiences compared to those who were less expressive (Greenberg & Stone, 1992; Greenberg, Wortman, & Stone, 1996). The results further suggested that the health benefits from disclosing severe

traumas exist regardless of whether or not a previous disclosure has occurred. In a remarkable finding, the authors demonstrated that among subjects with a trauma history, those who expressed an imagined trauma enjoyed similar health benefits to those who expressed their actual experience. The implication is that expressive responses may provide benefits even when they fail to specifically address the actual distressing experience.

Lab studies have shown that confiding in others about one's distressing experiences reduces further inhibition and indications of physical illness (Mumford, Schlesinger, Glass, Patrick, & Cuerdon, 1998). Lepore, Ragan, and Jones (2000) conducted a study demonstrating that when subjects are allowed to talk alone or with a supportive individual about their exposure to a stressful stimulus, they report lower levels of intrusive thoughts and perceived stress after reexposure to the same stimulus. These findings suggest that talking about acute stressors can facilitate adjustment to the aversive stimulus. Numerous findings have also emerged from Spiegel and colleagues demonstrating that psychotherapeutic techniques that encourage the expression of negative affect, direct confrontation of fears, and social support, can slow the progression of cancer as indicated by differences in survival rates (for reviews, see Spiegel, 1992; Spiegel & Kimerling, 2001). Possible mechanisms for this psychosocial effect on disease processes include changes in diet and exercise, better use and provision of health care, and positive effects on the sensitivity of the endocrine and immune systems to stress. Overall, the research on expression responses suggests that a more open, expressive style offers protective benefits from the negative emotional and physiological effects of both the distressing experiences themselves and their recall.

Catharsis

Any discussing of the expression of distressing experience would be remiss to exclude a consideration of the historical and current understandings of catharsis. Classic theoretical perspectives on this topic hold that the disclosure of traumatic, distressing experiences and their negative emotional components is a necessary process in the recovery from problematic symptoms. The process mediating the benefits of emotional disclosure are not linked to verbal recall but rather are based in the concept of emotional discharge that takes place with an “optimum distance” from the distressing emotions in the context of developing a sense of control and mastery (Scheff, 1979, p. 60). Several authors have pointed out lingering perceptions within the field of psychology that negative emotions are most effectively reduced through the general action of cathartic expression (Donnelley & Murray, 1991; Tavis, 1984). However, considerable evidence exists indicating that venting alone is insufficient for such change. Research has suggested that the only effective cathartic experience is one in which emotional discharge is done in conjunction with cognitive reinterpretation (Murray, 1985). Cameron and Nicholls (1988) presented a study in which emotional disclosure not only failed to benefit individuals coping with distressing experiences but also made some resultant symptoms worse. However, when individuals disclosed their emotional responses in conjunction with structured cognitive processing of the events, they went on to experience more stable adjustment, mood levels, and perceptions of control compared to those who only disclosed.

Psychotherapy research has also demonstrated the need for cathartic expression of distressing experiences to be coupled with a structured cognitive processing of the

experience. Lewis and Bucher (1992) presented an investigation of anger expression in a therapeutic context, finding that there was little value in venting or catharsis in the absence of guided cognitive structuring. Additional studies have suggested that observed health benefits of the expression of distressing experiences through written and verbal dialogue are not enjoyed by individuals who express such experiences in nonverbal forms (Krantz, 1994). Based on recent research, the current perspective on catharsis holds that the beneficial element in the expression of emotion related to distressing experiences is the act of putting the experience into language. This act is thought to involve a transition of one's experience from nonverbal to verbal forms, moving from inhibition to disinhibition (Mishara, 1995). Importantly, narrating about past distressing experience does not introduce language to a nonverbal experience. Rather language is inseparable from embodied experience at all points in the processes of perception, representation, memory, and narration. The act instead introduces a union of the disparate, fragmented aspects or representation that characterize responses to distressing and traumatic experiences.

The Role of Language

The cognitive component that the previously reviewed studies cite as the necessary supplement to emotional catharsis is most often linguistic in form. The idea that language plays a critical role in coping with a distressing experience and facilitating one's understanding of such events has strong roots in early psychoanalytic theory. Breuer and Freud (1895/1957) gave formal attention to the value of dialogue in the treatment of psychopathology, or as their most famous patient, Dora, described it, the value of a "talking cure" (p. 30). Breuer and Freud discovered what they believed to be a

fundamental link between cognition and the affect in response to distressing or traumatic events. They noted that such experiences often lead to the suppression of memory and ideational components while emotion and affect lingered either in conscious awareness or in the form of hysterical symptoms. When individuals described these experiences in fine detail, their symptoms appeared to remit. But linguistic descriptions of this nature were often unobtainable without the assistance of an analyst who could insure that the expression of feelings was accompanied by what Freud referred to as an associative correction. The talking cure was the core of early psychoanalysis, but the use of linguistic expression to derive relief from distressing experiences and resultant symptoms now serves as the foundation of countless forms of psychotherapy. The significance of Breuer and Freud's discovery went beyond the use of language as a remedy for physical and psychological ills, holding broader implications for the nature of remembering and talking about past distressing to alter current functioning (Bucci, 1995).

What Freud stumbled upon was a fascinating tension between events, words, and symptoms, or between mental representation, narrative accounts of the experience, and aspects of one's functioning. He subsequently began to deconstruct the notion that actual facts have precedence over the meaning individuals attach to them (Culler, 1982).

Espousing these ideas in explaining the concept of a screen memory, Freud (1899/1962) argued that memories of earlier events are not held in storage only to emerge at a later time. Rather, memories are often constructed at the moment of recall. The exact raw material of memory and representation remains unknown, however the process of analysis facilitates the raw material finding relevance in language through dialogue and narrative form (Schafer, 1989). This opens the door for change in the relationships

between the representation of an event, the meaning or narrative attached to it, and the resultant effects on functioning.

Normally the human drive to find meaning and understand experience is a helpful process. Yet when events are experienced as a major upheaval, unanticipated stressor, or trauma, they may not lend themselves to plausible explanations. Individuals respond by becoming preoccupied in thought, body, emotion, and behavior, or by disavowing the experience altogether (Niederhoffer & Pennebaker, 2002). Victims of trauma in fact often have no personal narrative relevant to the distressing experience (van der Kolk & Fisler, 1995). A large body of research speaks to the fact that individuals who tend to cope in repressive ways have significantly greater difficulty recalling details of their negative experiences (e.g., Myers & Brewin, 1995; Myers, Brewin, & Power, 1998; Newman & Hedberg, 1999). In a critical study examining this phenomenon, Rauch et al. (1996) determined that during a provocation of traumatic memories, subjects exhibited a decrease in activation of Broca's area in the brain, the primary area involved in the transduction of subjective experience into speech and language. Subjects also showed an increase in activation in right hemisphere areas known to be involved in the processing of intense emotional and visual information. The findings suggested a neurophysiological correlate to the lack of organizational and narrative abilities in response to memories of traumatic experiences. The authors concluded that this deficit appears to impede the development of narrative memory for distressing events and the assimilation of traumatic memories into existing memory and knowledge structures.

Long-term changes in the application of language to traumatic and distressing experiences have also been observed. Personal narratives become less disorganized over

a period of time in which individuals repeatedly discuss their distressing experiences (DeSavino et al., 1993). Improvements in organization are often associated with improvements in general functioning and reduction in symptoms. Foa, Molnar, and Cashmen (1995) found that during treatment for traumatic stress reactions, subjects' narratives about the event in question increased in length, decreased focus on actions, and increased focus on expressed thoughts and feelings. Improvements in narrative organization were negatively correlated with symptoms of depression. Although the authors found that indices of narrative fragmentation did not significantly decrease during treatment, a correlation between decrease in fragmentation and reduction in trauma-related symptoms was detected. Language and narrative expression of distressing events may not be immediately available, but the integration of such experiences into narrative forms over time likely has numerous positive effects on functioning.

Forgiveness and Empathy

Personal experiences that involve acts of violence or betrayal committed by an offender may form a special subset of traumatic and distressing events. These experiences are inherently interpersonal in nature and as a result are likely to elicit the cognitions, emotions, and behaviors that are part of one's mental representations of previous interpersonal experiences. As reviewed earlier, these relational schemas or internalized object relations are based both on one's cumulative experience and well as those experiences that were particularly potent or critical in developmental timing. They are essential elements in determining how humans think about self and other. Distressing and traumatic experiences by their nature often demand intense psychological and physical responses. But when these experiences are interpersonal, such as in the case of

violence or betrayal, an individual's response is often influenced by efforts to synthesize the new experience with mental representations of those from the past.

The emotional and cognitive processes involved in an individual recovering from the experience of a natural disaster or mechanical accident are routinely described in the literature as working through, coming to terms with, consolidating, and gaining closure. But in cases where another individual directly caused the distressing or traumatic experience, the process of recovery is further shaped by the elements of forgiveness and empathy (McCullough, Pargament, & Thoresen, 2000). Letting go of negative thoughts, feelings, and behaviors, as well as seeking a more compassionate understanding of one's offender, can have a variety of consequences that impact responses to distressing experiences (Pargament, 1997). Several studies have demonstrated improvements in depression and anxiety following interventions designed to promote forgiveness and empathy towards an offender (e.g., Coyle & Enright, 1997; Freedman & Enright, 1996). As a result, forgiveness and empathy are increasingly conceptualized in the literature as coping responses to interpersonal stress that have important health implications (Thoresen, Harris, & Lusk, 2000).

In recent years research has emerged that begins to consider the relationship between forgiveness, empathy, and responses to distressing interpersonal experiences. Finkel, Rusbult, Kumashiro, and Hannon (2002) found that subjects' tendency to forgive after betrayal in a close relationship was mediated by their cognitive interpretations of incidents. Forgiveness appeared to require a lessening of self-oriented reactions to the incident of betrayal. In an earlier study, Witvliet, Ludwig, and Vander-Laan (2001) examined the emotional and physiological effects of having subjects rehearse hurtful

memories while either nursing grudges or cultivating empathy and forgiveness for their offenders. Subjects who focused on unforgiving thoughts experienced greater aversive emotion as well as increased heart rate and blood pressure changes from baseline when compared to those who focused on empathy and forgiveness. For those nursing grudges, the observed physiological changes persisted into the recovery period. The authors concluded that greater degrees of forgiveness and empathy expressed towards one's offender prompted greater control of physiological reactivity during recall of the distressing event. The role of forgiveness and empathy in the processing of distressing interpersonal experiences appears to share many of the positive benefits of emotional and cognitive processing during linguistic expression. Yet despite the likely relationship between these constructs and the issues of narrative, memory, and symptom formation in the area of distressing interpersonal experiences, controlled studies have been lacking.

Narrative Expression Research

Given the inherent role of language in the mental representation and memory of experiences, the role of expression and personal narrative have taken a central position in researching the ways in which humans deal with distressing events. For over two decades the physical and psychological benefits of translating distressing personal experiences into words have been explored (for reviews, see Pennebaker & Seagal, 1999; Smyth, 1998; Smyth & Pennebaker, 1999). This research has drawn heavily from empirical and theoretical knowledge about the role of confession and self-disclosure in psychotherapy, religion, and intimate social interactions. Based on research indicating the various psychological and physical consequences of repressive and expressive coping strategies, some authors have argued that self-disclosure is a reflexive human activity that is

disrupted by the distressing nature of some experiences (Derlega, Metts, Petronio, & Margulis, 1993; Jourard, 1971).

The work of Pennebaker and colleagues has contributed substantially to understanding the relationship between distressing experience, personal narrative expression, and coping. Pennebaker (1985) documented how the inhibition of emotional expression surrounding stressful events contributed to psychosomatic disease. He has since undertaken a research pattern investigating the physical and psychological benefits of a special type of narrative expression. In their initial investigation using the narrative expression procedure, Pennebaker and Beall (1986) assigned groups of healthy college students to write for 15 minutes on four consecutive days about either a personally traumatic experience or a trivial topic. Subsets of each group were told to write either about the facts of the events, their thoughts and feelings, or both. Students were then followed for several months in order to assess their functioning in a variety of areas. The results demonstrated that the students who wrote about a personal trauma while addressing both the facts and their thoughts and feelings had the lowest occurrence of physical illnesses, symptoms, and health center visits in the months that followed. The authors interpreted the findings as evidence for the benefits of overcoming an inhibitory response to personal distress through the emotional and cognitive processing involved in narrative expression.

The notion that narrative expression helps overcome negative health effects is based on an inhibition-confrontation model where reticence to express thoughts, feelings, and impulses associated with a distressing or traumatic experience requires physiological work (Pennebaker, 1989). Personality theories have previously offered models of

inhibited coping when referring to stress symptoms among individuals who tend to experience negative affectivity (Clark & Watson, 1991), negative emotionality (Ben-Porath & Tellegen, 1990), and neuroticism (Costa, 1987). Over time such work can cause cumulative stress on the body, increasing vulnerability to illness (Pennebaker, 1993; Traue & Deighton, 1999). Given that traumatic and distressing experiences are particularly difficult to assimilate and understand, the normal benefits of linguistic expression are often less applicable. Representational and linguistic information related to the experience are frequently part of what is inhibited in one's response (Myers, Brewin, & Power, 1998; Newman & Hedberg, 1999).

In the years since the initial narrative expression studies, this procedure has been applied to a wide variety of distressing experiences and subject populations. While only two studies have found that benefits occurred only among those who expressed very traumatic events (Greenberg & Stone, 1992; Lutgendorf, Antoni, Kumar, & Schneiderman, 1994), numerous other investigations have found disclosure to be broadly beneficial, even when the distressing event is an imagined one (Greenberg, Wortman, & Stone, 1996). The overall effects appear to be maintained across various social classes and major ethnic/racial groups in the United States (Richards, Beal, Seagal, & Pennebaker, 2000; Rimé, 1995). Less stratified samples have also been assessed in Mexico and the Netherlands with similar results (Dominguez et al., 1995; Schoutrop, Lange, Brosschot, & Everaerd, 1997). Although the majority of studies have been confined to samples of college students, similar effects have been seen in a variety of other populations including Holocaust survivors, the unemployed, and prison inmates

(Pennebaker, Barger, & Tiebout, 1989; Richards, Beal, Seagal, & Pennebaker, 2000; Spera, Buhrfeind, & Pennebaker, 1994).

The only populations thus far in which narrative expression groups have not fared better than controls has been among individuals with disordered cognitive processing and severe depression (Gidron, Peri, Connolly, & Shalev, 1996; Stroebe & Stroebe, 1996). The authors in both of these studies concluded that the combined emotional and cognitive processing that has previously been demonstrated as a necessary component in reaping benefits from narrative expression was not available to these subjects as a result of their condition. They based such conclusions on evidence that the ways in which one construes a distressing event greatly influences the range of adaptive responses available to deal with its consequences (Folkman, Lazarus, Gruen, & Delongis, 1986; Lazarus & Folkman, 1986). For subjects who are unable to construe events in an open, flexible manner, either due to cognitive deficits or severe mood disruptions, they likewise are limited in their ability to adapt to consequences in a novel way.

Several studies have investigated the possibility that writing and talking about distressing experiences may yield different effects (Donnelley & Murray, 1991; Murray, Lamnin, & Carver, 1989; Murray & Segal, 1994; Pennebaker & Seagal, 1999). The general consensus from these findings is that subjects who write about their distressing and traumatic experiences report slightly more negative emotions at the conclusion of the procedure in comparison to those who talk. In addition, talking may produce a greater degree of cognitive reappraisal of the original experience through shifts in attitudes about the event. Talking may also induce a greater degree of overall expression of emotion. However, thus far in the narrative expression research there appears to be no significant

differences in the overall effects of narration between subjects who write and those who talk about their distressing experiences.

Many authors have speculated about the effects of inhibiting strong emotions. As reviewed earlier, repressive responses have been linked to numerous negative effects on psychological and physical functioning. While the benefits observed to occur in response to the narrative expression procedure initially were restricted to self-report indices and external observations, this research has since begun to look at the immunological and physiological components that correlate with these benefits. Individuals participating in the narrative expression paradigm have been shown to exhibit greater proliferative capacity of T lymphocytes in the blood six weeks after intervention in comparison to those writing about trivial events (Pennebaker, Kiecolt-Glaser, & Glaser, 1988). Among subjects with latent Epstein-Barr Virus (EBV), those assigned to write or speak about distressing and traumatic events experienced improved immunological control of EBV over a four-week period compared to those narrating about trivial events (Esterling, Antoni, Fletcher, Margulies, & Schneiderman, 1994). Petrie, Booth, Pennebaker, Davison, and Thomas (1995) also described a study in which subjects receiving a Hepatitis B vaccine participated in the narrative expression paradigm. Compared with controls, those who generated narratives about stressful and traumatic experiences produced significantly greater immune responses to the vaccine in terms of antibody production.

One of the most interesting and least understood aspects in the narrative expression literature is the degree to which the observed benefits may be related to group and individual differences among the subjects. Although research using the narrative

expression procedure has begun to focus on this area, it has been limited to specific linguistic differences among the subjects. Francis and Pennebaker (1993) developed a Linguistic Inquiry and Word Count (LIWC) program that analyzed narrative texts by various word categories. The health benefits routinely observed for the narrative expression procedure have since been related to the use of positive emotional, causal, and insight words (Pennebaker & Francis, 1996). Additional investigations have shown that physical health benefits are maximized when narratives contain high levels of positive emotion words, moderate levels of negative emotion words, and increased use of causal and insight words (Pennebaker, Mayne, & Francis, 1997). The authors noted that the more focused and coherent the narratives became across several days, the greater the health benefits at follow up. Other evidence has suggested that while the frequency of emotional words in the narratives may be related to outcome benefits, the overall subjective emotional experiences of the subjects is not (Pennebaker, Colder, & Sharp, 1990). Benefits were strongly related to subjects' self-report of having an increased understanding of their experience.

The idea that the construction of a brief oral or written narrative about a distressing experience can impact objective health variables was initially a remarkable and controversial finding. Since the preliminary studies the evidence has become increasingly robust. However, the excitement generated by the narrative expression research must be tempered by a greater focus on the overall effect of the procedure, documenting its underlying mechanisms, and comparing it to other types of interventions. Smyth (1998) recently conducted a meta-analytic review of controlled studies to examine the relationship between the narrative expression procedure and subsequent health

benefits. He determined that the mean weighted effect size across all included studies and outcomes for the narrative expression procedure was $d = .47$. Smyth found that benefits were largely equivalent in the areas of reported physical health, psychological well being, physiological functioning, and general functioning. Importantly, most of the included studies found such relationships even when controlling for changes in health behaviors. In a preliminary effort to account for the mechanisms of these effects, Smyth and Pennebaker (1999) have suggested that narrative expression about distressing and traumatic events may be beneficial because it forces an effective recoding of the negative memory from nonverbal forms into narrative language. This recoding, not unlike Breuer and Freud's (1895/1957) associative correction, may allow for a modification of representations of the experience with new information being integrated into existing knowledge structures. Integration and expression therefore serve to interrupt responses such as intrusive reexperiencing and chronic hyperarousal, ultimately leading to reductions in physical and psychological symptoms.

Current Study

Focus

The current study sought to expand the existing knowledge base on the relationship between the expression of past distressing experiences and current functioning. Specifically, the relationships between individual differences in personal narrative form and observed variations in measures of physical, psychological, and physiological response patterns were investigated. Although previous research in the narrative expression literature has attempted to account for individual differences in personal narratives, these efforts have been confined to specific linguistic categories. In

contrast, the current study explored whether certain patterns in the personal narrative form when expressing a distressing experience might provide valuable information not only about how individuals construe experiences but also the degree to which these differences are related to variations in current functioning. The narrative expression research to date has often resulted in broad conclusions being drawn about the general benefit of coping with a distressing or traumatic experience in an open, structured, and expressive manner. However, if the observed effects are indeed influenced by yet unresearched individual differences in personal narrative form, then these broad conclusions likely require revision. In beginning to investigate this line of inquiry, the current study examined individual differences in the coherence and richness of personal narratives of distressing interpersonal experiences of betrayal. Specific areas of current functioning that were of interest included physical symptoms, stress, physical health, forgiveness and empathy, and physiological responsivity.

Methodology

To examine questions concerning the relationship between individual differences in narrative form and various indices of current functioning, a normal sample of individuals was selected for investigation. These relationships were examined through the gathering of relevant information while having participants narrate about a distressing event of betrayal by a caretaker. This type of experience was chosen as the topic because it allowed participants to relate distressing experiences that were interpersonal in nature. Experimenters collected demographic information about participants while also rating several features of the event each participant's selected to narrate. Participants answered a series of self-report indices designed to assess factors of health such as common

physical symptoms, stress, medication use, and family history of heart attack and high blood pressure. Inquiries were also made into levels of forgiveness and empathy towards their offenders. Participants physiological functioning was monitored prior to, during, and after their narrative recounting of their distressing experiences of betrayal. This allowed for investigating the general effects of the narration task on physiological functioning, as well as examining the relationship between individual differences in the coherence and richness of personal narrative and overall physiological functioning. Finally, the relationship between these individual differences in personal narrative and the reactivity and recovery of physiological functioning during the narrative expression task was investigated.

Hypotheses

Based on the reviewed relevant research, several hypotheses were generated. These hypotheses were organized and investigated within three separate areas of focus: physical and psychological health factors, forgiveness and empathy, and physiological responsivity.

Physical and Psychological Health Factors. A variety of positive physical health factors have been linked in the literature to what is described as an ability to generate a structured, thorough, and open summary of one's distressing personal experiences (e.g., Blackburn, 1965; Burnum, 1991; Greenberg & Stone, 1992; Greenberg, Wortman, & Stone, 1996; Larson, 1990; Mumford, Schlesinger, Glass, Patrick, & Cuerdon, 1998; Pennebaker & Hoover, 1986; Pennebaker, Mayne, & Francis, 1997; Pennebaker & O'Heeron, 1984; Sagy & Antonovsky, 1992). This ability is theoretically congruent with the aspects of personal narrative form previously described as coherence and richness.

Consequently, the first hypothesis concerning physical and psychological health factors was as follows: Narrative coherence and richness will be significantly correlated to variations in reported physical symptoms. Higher levels of coherence and richness will be related to lower levels of physical symptoms.

Similar to physical health indices, investigations have previously linked lower levels of subjective stress to the ability to generate a structured, thorough, and open summary of one's distressing personal experiences (e.g., Kaiser, Sattler, Bellack, & Dersin, 1996; Lepore, Ragan, & Jones, 2000; Mullen, Smith, & Hill, 1993). As a result, the second hypothesis generated concerning physical and psychological health factors was as follows: Narrative coherence and richness will be significantly correlated to variations in reported stress. Higher levels of coherence and richness will be related to lower levels of stress.

Previous studies of the benefits of narrative expression have often relied on the frequency of an individual's visits to their physician as an index of physical health (e.g., Pennebaker & Beall, 1986; Greenberg & Stone, 1992). This type of objective data relevant to physical illness was not available in the current study and subjective reports of recent illness were expected to have been highly correlated with the assessment of physical symptoms. As a result, other potential indices of physical health were investigated, although no clear relationship between these variables and narrative expression had been documented in the literature. These indices included current medication use, family history of high blood pressure, and family history of heart attack. The third hypothesis concerning physical and psychological health factors was as follows: Significantly lower levels of narrative coherence and richness will be observed

among participants reporting current medication use, and a positive family history for negative health indicators.

Forgiveness and Empathy. The process of recovering from distressing experiences that are interpersonal in nature has previously been linked to an individual's capacity to forgive and feel empathy towards their offender (McCullough, Pargament, & Thoresen, 2000). Furthermore, forgiveness and empathy have been shown to have a significant impact on physical and emotional responses to distressing interpersonal experience (e.g., Coyle & Enright, 1997; Freedman & Enright, 1996; Pargament, 1997). Forgiveness appears related to how individuals structure their understanding of events while empathy seems to reflect a willingness to consider the intentions, feelings, and actions of the offender (Finkel, Rusbult, Kumashino, & Hannon, 2002; Witvliet, Ludwig, and Vander-Laan, 2001). The role of forgiveness and empathy in the processing of distressing interpersonal experiences appears to share many of the positive benefits of emotional and cognitive processing during linguistic expression. To investigate the relationship between a structured, thorough, and open expression of a distressing interpersonal experience and the concepts of forgiveness and empathy, the following two hypotheses were generated: First, narrative coherence and richness will account for a significant amount of the variation in forgiveness towards one's offenders. Higher levels of coherence and richness will be related to higher levels of forgiveness. Second, narrative coherence and richness will also account for a significant amount of the variation in empathy towards one's offenders. Higher levels of coherence and richness will be related to higher levels of empathy.

Physiological Responsivity. The effects of distressing experiences on physiological responsivity have been examined in the traumatic stress literature. In particular, the negative impact of repressive coping (e.g., Davies, 1970; King, Taylor, Albright, & Haskell, 1990; McClelland, 1979) and positive impact of expressive coping (e.g., Berkowitz & Troccoli, 1990; Goldstein, Edelberg, Meier, & Davis, 1988; Keltner, Locke, & Audrain, 1993) on physiological responsivity are well documented. Yet within the narrative expression research, the use of physiological responsivity as an index of current functioning is rare. Pennebaker, Hughes, and O’Heeron (1987) provided an important exception when they documented that narrating about a distressing personal experience produces marked physiological changes in comparison to narrating about a trivial event. Consequently, the first hypothesis concerning physiological responsivity was as follows: The task of narrating about a distressing event will significantly increase physiological measures from baseline levels, and these measures will return to baseline after narration is concluded.

The traumatic stress literature is divided as to whether distressing experiences contribute to changes in baseline physiological functioning. The current consensus appears to be that a degree of blood pressure elevation and general cardiovascular dysregulation can at times be detected among individual with clear PTSD responses (Cohen et al., 1998; Muraoka, Carlson, & Chemtob, 1998). Increased physiological arousal has also been observed among individuals who have difficulty generating a structured, open account of their distressing experiences (Goldstein, Edelberg, Meier, & Davis, 1988; Keltner, Locke, & Audrain, 1993). However, these same individuals appear to exhibit far less autonomic responsivity to recounting the distressing experience itself

(Cohen et al., 1998). As a result, the second hypothesis concerning physiological responsivity was as follows: Narrative coherence and richness will not be related to mean physiological levels at baseline functioning. However, narrative coherence and richness will account for a significant amount of the variation in physiological measures while narrating about a distressing experience. Higher levels of coherence and richness will be related to higher mean levels of heart rate and blood pressure.

Beyond inquiries into physiological functioning during baseline and while recounting a distressing event, the literature has also addressed the topic of physiological reactivity. Several authors have argued that memories and representations of distressing experiences are often dominated by increased physiological arousal rather than by declarative knowledge (e.g., Foa & Kozac, 1986; McFarlane, 1992; van der Kolk, 1994). Elsewhere individuals who cope repressively and are unable to process their distressing experiences in depth have been shown to be more physiologically reactive to general stressors (Davies, 1970; King Taylor, Albright, & Haskell, 1990) but less responsive when recalling their identified distressing experience (Cohen et al., 1998). To address whether physiological reactivity of the sort is affected by individual differences in narrative expression, the third hypothesis concerning physiological responsivity was formulated as follows: Narrative coherence and richness will account for a significant amount of the variance in physiological reactivity at the beginning of the narrating about a distressing experience. Higher levels of coherence and richness will be related to greater increases in physiological measures relative to arousal during baseline.

A separate portion of the literature has examined the physiological consequences of individuals who express their distressing experiences with greater ease. Several studies

have indicated that even the verbal labeling of a distressing emotion can reduce physiological arousal (Berkowitz & Troccoli, 1990; Keltner, Locke, & Audrain, 1993). In addition, Pennebaker, Hughes, and O'Heeron documented that the act of narrating about one's distressing experiences is related not only to physiological reactivity during expression but also to physiological recovery at its conclusion. Based on previous findings concerning the benefits of a structured, open, and thorough expression of one's distressing experiences, the fourth hypothesis concerning physiological responsivity was formulated as follows: Narrative coherence and richness will account for a significant amount of the variance in physiological recovery at the conclusion of narrating about a distressing experience. Higher levels of coherence and richness will be related to greater decreases in physiological measures relative to arousal during narration.

II. METHODS

Participants

One hundred and eight undergraduate students at a large state university participated in the study. As part of stated curriculum, many psychology courses at this university offer a limited amount of extra credit to students who choose to participate in approved research projects. The participants were thus awarded extra credit for the course in which they were enrolled. No compensation or incentive was provided to those participants not receiving extra credit.

Due to periodic malfunctions of physiological and video recording equipment, inadequate data were gathered for 11 of the original participants and they were excluded from the data analysis. As a result, the final data sample consisted of 97 participants, including 43 males and 54 females. The mean age of participants was 20.47 years ($SD = 3.00$) with a range of 18-35 years. The racial/ethnic composition of the sample was predominantly Caucasian (86%) with the remaining participants describing themselves as African American (10%) or “other” (4%).

Procedures

Recruitment procedures consisted of announcements made during class lectures as well as descriptions posted in a location designated for research advertisements. Recruitment descriptions were general in nature, identifying the study as a research project investigating factors associated with relationship problems. Interested individuals signed up for laboratory appointments to gain more detailed information about the study and have an opportunity to participate. When individuals arrived at the lab they were given an informed consent sheet detailing both the nature of the study and their rights

regarding participation. After reviewing these terms with the experimenter, individuals who chose to continue were admitted to the study as participants.

Participants were then given an interview recall sheet describing the personal narrative portion of the study. The printed instructions read as follows: “During the interview, you will be asked to recall a time when you were deeply hurt by your parent(s) or primary caregiver(s). Think of a time now when you were deeply hurt or betrayed by someone close to you. On the following couple of lines, jot down a few words about the incident to remind you during the interview which event you picked to share.” After completing this sheet, participants were escorted into a separate interview room where transducers for physiological recordings were applied.

Following the application of transducers and assessment for signal clarity, participants were instructed to rest for a period of 10 minutes and remained alone in the interview room. This period of time, referred to as the *rest segment*, was designed to help participants relax while providing an opportunity to gather baseline readings for physiological measures. To facilitate their relaxation, participants watched a video of tropical fish that was accompanied by quiet, instrumental music (Piferi, Kline, Younger, & Lawler, 2000). At the conclusion of the rest segment the experimenter returned to the interview room in order to begin the personal narrative interview. The entire interview period, referred to as the *narrative segment*, was videotaped for each participant. Although the alternative of audio recording was made available, all participants consented to videotaping.

At the conclusion of the narrative segment the experimenter again left the room and participants were instructed to relax for a brief period of time. Physiological

measures continued to be assessed during this period, referred to as the *recovery segment*. After three minutes, the experimenter returned and instructed participants to begin completing the provided questionnaires. The experimenter also answered a series of questions during the recovery segment related to his or her understanding of the participants' narrated experience. When the recovery segment and questionnaires were complete, the experimenter returned to the room, physiological transducers were removed, and the participant was debriefed concerning the nature of the experiment.

Measures

Personal Narrative Interview

Participants' personal narratives of their distressing, interpersonal experiences of betrayal were elicited through a two-stage interview. The first stage involved the use of an open-ended prompt that encouraged participants to speak freely about their identified event. The second stage consisted of several scripted questions designed to help the participants describe their experiences in a more comprehensive manner. As a result, the interviews yielded two sections of personal narrative, referred to as *chapters*.

The experimenter began the first chapter of the narrative segment by inquiring about the event each participant had previously noted on his or her interview recall sheet. The experimenter read the following statement, inserting the appropriate information for each participant: "In this interview, I would like you to describe a time when your parent(s) or caregiver(s) deeply hurt or upset you. Earlier you wrote down _____. Take a moment to remember the specific event and then tell me exactly what happened in as much detail as you can." Participants were then permitted to reflect on the event. The narrative segment officially began with their initial statements. The experimenter allowed

participants to narrate freely about their experiences during this chapter while refraining from any form of verbal comment or inquiry. When participants indicated they were finished with this initial narration, the experimenter began the second chapter of the interview.

The scripted questions designed to elicit the second chapter of the personal narrative focused on participants' interpersonal experiences with their identified offender(s). The specific questions were as follows: "How long ago did this happen?, What feelings do you remember having during the event?, Did you express your feelings to the other person in any way?, Why do you suppose they did this to you?, How would you describe the quality of your relationship to this person before the event?, and What has been the impact of the event?" The following perspective taking question was also asked: "Now, suppose your parent(s) or caregiver(s) were here and I asked them to describe this event, what would they say?" To maintain consistency across participants, the order of questions was held constant while the experimenter avoided any comments and additional prompts that deviated from these scripted inquiries. The narrative segment was concluded when participants finished answering the final scripted question.

Physiological Functioning

Participants were seated in a recliner chair throughout the rest, narrative, and recovery segments. They faced a small desk that held a television for viewing the relaxation tape and the video equipment for recording the interview. When present in the room, the experimenter was seated to the front and right of participants. A second desk, which held equipment used for physiological monitoring, was positioned to the right side

of the recliner. All equipment used for physiological data recording and analysis was located in an adjacent room.

For each participant, heart rate was measured with the use of a Coulbourn Instruments LabLinc V physiograph and three 8-millimeter electrodes. Signals were routed through a model V75-04 isolated bioamplifier with bandpass filter and a model V77-26 tachometer. Blood pressure was noninvasively measured using a Critikon Dinamap Vital Signs Monitor, model 1846SX. Participants' wore blood pressure cuffs on their nondominant upper arm so that the completion of questionnaires during the recovery segment did not interfere with readings. Following each cuff deflation, systolic, diastolic, and mean arterial pressures were recorded. Each physiological measurement was activated from recording equipment located in the adjacent room.

Quality of the Distressing Event

During the recovery segment, the experimenter assessed several aspects of the distressing event participants' chose for their narrative. Questions were posed that allowed the experimenter to categorically rate the severity and impact of the experience on the participant. The experimenter also recorded the length of time in years that had passed since the narrated experienced originally occurred. This information was based on the participants' responses to a specific question from the second chapter of the narrative interview.

Physical Functioning

The assessment of participants' physical functioning involved using the Cohen-Hoberman Physical Symptoms Checklist (PSL; Cohen & Hoberman, 1983). The PSL provides a list of 39 common physical symptoms that are present in a wide variety of

physical and mental disorders. Although the PSL was designed to inquire about symptoms most individuals perceive as not having a clear psychological component, many of the items are psychosomatic in nature. Among the symptoms included are headaches, weight loss, fatigue, and nausea. Participants indicated the degree to which they had experienced particular symptoms within the past month. These ratings occurred along a 5-point Likert scale anchored by the descriptions “not at all” and “very much.” During development, the PSL demonstrated acceptable levels of internal reliability. PSL scores were also found to correlate significantly with individuals’ use of health facilities in the weeks following completion.

Stress

Participants’ levels of general stress were measured with the Inventory of College Students’ Recent Life Experiences (RLE; Kohn, Lanfreniere, & Gurevich, 1990). The RLE asks individuals to consider the degree to which certain stressful experiences have been present in their lives over the past month. Among the 49 items included are statements such as “separation from people you care about,” “conflicts with your friends,” and “not enough time to meet obligations.” Participants responded to each item along a 4-point Likert scale, anchored by the descriptions “not at all” and “very much.” The RLE demonstrated acceptable levels of internal reliability during development.

Potential Health Factors

In addition to the indices of physical functioning and stress, participants were also asked three yes/no questions about factors potentially related to their overall physical health and functioning. Questions were asked concerning the history of high blood pressure and heart attacks among immediate family members. An additional question

concerned whether participants were currently taking prescription medication for a medical or mental condition, excluding oral contraceptives.

Forgiveness

Forgiveness was assessed as a state variable rather than a more general trait or personality characteristic. This allowed participants to report their level of forgiveness towards the offender(s) identified in their narrated experience. In measuring state forgiveness, the Transgression Related Interpersonal Motivations inventory was administered (TRIM; McCullough et al., 1998). The TRIM is a 12-item scale that asks individuals to rate their level of agreement to general statements about an identified offender. Examples include, "I'll make him/her pay" and "I avoid him/her." Participants rated each item for their offender(s) along a 5-point Likert scale anchored by the descriptions "none" and "completely." In development and further assessment, the TRIM demonstrated adequate internal consistency, factor structure, and construct validity (McCullough & Hoty, 2002).

Empathy

Empathy was also assessed as a state variable, requiring that participants report their level of empathy towards the offender(s) identified in their narrated experience. To measure this construct, the Empathy Scale (ES) developed by Coke, Batson, and McDavis (1978) was administered. The ES is an 8-item scale that asks individuals to rate the degree to which they identify with certain feelings towards their offender along a 5-point Likert scale anchored by the descriptions "not at all" and "extremely." Examples of included items are "I feel compassionate towards my offender(s)" and "I feel warm

towards my offender(s).” In development, the ES demonstrated adequate reliability, internal consistency, and factor structure.

Data Quantification

Personal Narratives

In order to quantify the personal narratives generated during the interview, trained research assistants first transcribed these narratives from the interview videotapes. Care was taken in the transcription process to accurately reproduce each participant’s narrative verbatim for both chapters of the interview. Transcribed narratives were then subjected to analysis according to the Personal Narrative Coding System (PNCS) developed by Castlebury and Wahler (1998). The PNCS was originally designed to assess the dimensions of coherence and richness in an individual’s personal narrative response to a structured interview. However, the PNCS has since been applied to other forms of narrative productions with acceptable validity (Rogers, 2000).

Three trained and experienced raters assessed approximately 1/3 of the narratives generated by the participants using the PNCS. The assignment of narratives was randomized and the raters were blind to all other data collected during the study. Besides the narrated transcripts, the only additional information provided to the raters was the participants’ written descriptions of their identified events from the interview recall sheets. This information was made available because the experimenter used these statements as prompts in order to initiate the first chapter of the narrative. Raters applied the PNCS to both chapters of the narratives. This process involved coding two scales for each chapter by answering a series of yes/no questions. Each scale contained five questions with one scale assessing the coherence of the narrative and the other assessing

richness (see Appendix A for individual PNCS questions). “Yes” answers were assigned a value of one point and were totaled for each scale within the chapters.

During the development of the PNCS, Castlebury and Wahler (1998) found that internal consistency for the coherence questions achieved an alpha correlation coefficient of .86. In terms of independent answers to the item questions, interrater reliability analysis produced an intraclass correlation coefficient of .80. Internal consistency for the richness questions was established at an alpha correlation coefficient of .72. Interrater reliability in independent answers to the item questions demonstrated an intraclass correlation coefficient of .95. In an additional study concerning the validity of the PNCS, the coherence and richness scales demonstrated interrater reliability comparable to previous findings as well as strong test-retest reliability (Rogers, 2000).

Self-Report Measures

Trained research assistants scored questionnaires and individual questions related to physical functioning, stress, forgiveness, empathy, and quality of the narrated event. Questionnaires yielded total scores based on the participants’ indicated level of agreement. These data were treated as continuous variables during subsequent data analysis. The specific questions concerning additional health factors were assigned values of 0 for “no” answers and 1 for “yes” answers. These data were treated as dichotomous variables during subsequent analysis. Experimenter ratings of the quality of the narrated event were categorical in nature and were assigned values reflective of these distinctions.

Physiological Measures

Heart rate (HR) readings were recorded continuously throughout the rest, narrative, and recovery segments in terms of beats per minute. Mean HR levels were

calculated for the 6th, 8th, and 10th minutes of the rest segment. These means were then averaged to yield a mean rest segment HR for each participant. Since participants' narrative segments varied in length, ranging from five to eight minutes, mean HR levels were calculated for the first, third, and final minutes of the narrative interview. These means were then averaged to yield a mean narrative segment HR for each participant. Mean HR levels were also calculated during the first and second minutes of the recovery segment. These means were averaged to yield a mean recovery segment HR for each participant.

Because the current study was also interested in HR changes during transitions into and out of the narration of a distressing event, HR reactivity and recovery scores were calculated. Reactivity scores were calculated by subtracting each participant's mean rest segment HR from their mean HR during the first minute of the narrative segment. These scores reflected the degree of change from participants' baseline HR to their HR during the initial moments of narrating the distressing event. Recovery scores were calculated by subtracting each participant's mean narrative segment HR from their mean HR during the first minute of the recovery segment. These scores reflected the degree of change from participants' mean HR while narrating the distressing event to their HR during the initial moments of recovery.

Unlike the continuous recording of HR, blood pressure readings were taken at specific moments during the rest, narrative, and recovery segments. Although these readings recorded systolic and diastolic blood pressures separately, mean arterial pressure (MAP) was the variable of interest given its capacity to convey general information about the functional status of the cardiovascular system (Hugdahl, 1995). MAP readings were

taken at the beginning of the fifth, seventh, and ninth minute during the rest segment. These three readings were averaged to yield a mean rest segment MAP for each participant. A MAP reading were first recorded 15 seconds into the narrative segment and then at two-minute intervals thereafter until the segment was complete. Because interview length varied, each participant's mean narrative segment MAP was calculated by taking the average of their first, second, and final MAP readings. MAP was also recorded 15 seconds into the recovery period and then again one minute later. These two readings were averaged to yield a mean recovery segment MAP for each participant.

Similar to HR readings, reactivity and recovery scores were calculated for MAP during transitions into and out of narrating the distressing event. Reactivity scores were calculated by subtracting participants' mean rest segment MAP from their first MAP reading during the narrative segment. These scores reflected the degree of change from participants' baseline MAP to their MAP during the initial moments of narrating the event. Recovery scores were calculated by subtracting participants' mean narrative segment MAP from their first MAP reading during the recovery segment. These scores reflected the degree of change from their mean MAP while narrating to their MAP during the initial moments of recovery.

III. RESULTS

For all sections of the analysis, the probability of a Type I error was maintained at .05. Variations in the reporting of sample and group sizes, as well as corresponding degrees of freedom, are the result of missing or incomplete physiological data points generated during recording. To assist with the interpretation of relevant significant statistics, effect sizes are reported as Cohen's *d*.

Narrative Interrater Reliability Analysis

To ensure that the three raters of the personal narratives applied the PNCS in a consistent manner, a reliability analysis was conducted. A fourth individual with extensive experience in the application of the PNCS served as the expert rater and coded approximately 1/4 ($n = 24$) of the narratives for the total sample. Participants' narratives were chosen at random for this reliability coding and were equally distributed among the three raters. Reliability analyses included comparisons of the three raters as a whole to the expert, as well as pairwise comparisons between the expert and each of the raters.

In the social sciences literature, analyses of interrater reliability for dichotomous or categorical ratings such as those used in the PNCS often rely on the use of Cohen's kappa, a contingency table statistic that yields a coefficient of agreement (Cohen, 1960). Rather than simply reporting the proportion of overall agreement, kappa attempts to account for the proportion of chance agreement that may at times arbitrarily inflate this value. Yet the use of kappa presents several problems, leading some to question its utility in assessing interrater agreement (Cicchetti & Feinstein, 1990a, 1990b; Maclure & Willett, 1987; Thompson & Walter, 1988; Uebersax, 1987). Although the chance correction used by kappa results in a more accurate test of interrater reliability than the

proportion of overall agreement, the chance agreement term it relies on is only valid when the raters being compared are independent. In most research situations, independence among raters is rare. For example, raters in the current study not only operated from a standardized coding manual but they at various times trained and practiced together in their application of the PNCS prior to separately analyzing participants' narratives. The difficulty with using kappa in these situations is that the proportion of chance agreement that kappa seeks to control could be elevated by a variety of factors. Although some of those factors are certainly attributable to chance, others may be related to legitimate interrater agreement.

In addition to the problem of assumed independence, another difficulty in using kappa is that its role as a statistical test is widely misunderstood. Uebersax (1987, 2001) argued that while many researchers use kappa as an index of the degree of interrater agreement, this statistic only provides a test of whether the observed rater agreement exceeds what could be expected by chance alone. For this purpose, kappa was retained in the current reliability analysis. Overall kappa values between the three raters as a whole and the expert rater are presented in Table A-1¹. These tests of whether agreement exceeded chance alone were conducted separately for each item on the coherence and richness scales of the PNCS. Only the fourth item on the richness scale failed to reach statistical significance. Because kappa alone may not be an adequate measure of the degree of interrater agreement in the current study, other methods discussed in the literature were included in the analysis.

¹ All tables are located in the Appendix.

The proportion of overall agreement is the percentage of examined cases for which two raters agree. While this value can be inflated by chance, it is still informative and useful. The major problem that occurs with this value is that it does not distinguish between agreement on the levels of a dichotomous rating (e.g., agreement on “yes” ratings versus agreement on “no” ratings). But this limitation can be addressed by also calculating the proportions of specific agreement for each category of a rating (Cicchetti & Feinstein, 1990a, 1990b; Spitzer & Fleiss, 1974; Uebersax, 2001). These proportions can then be interpreted as estimates of conditional probabilities. For the current study, proportions of specific agreement for a “yes” rating on a given scale and item serve to estimate the probability that a randomly selected rater in the chosen pair would make a positive rating given that the other rater will do so. By considering the proportions of specific agreement for “yes” and “no” ratings together, one can determine whether the proportion of overall agreement is in fact being inflated by chance alone. In such situations, the proportion of specific agreement will be acceptable for one rating category and low for the other. By calculating the proportions of specific agreement and requiring both to be high, the original criticism of chance inflating the proportion of overall agreement is addressed.

In the current study, the proportion of overall agreement as well as the proportions of specific agreement for “yes” and “no” ratings for each PNCS item are presented in Table A-1. These values were calculated for each pairing of the three raters and expert rater. Mean values of each proportion across the three pairs are reported along with the range of values among the pairs. The fourth item from the richness scale demonstrated an overall proportion of agreement below the chosen acceptance level of 70%. In addition,

this was the only item in which a proportion of specific agreement for one rating category fell below chance ($<50\%$), suggesting that the overall proportion of agreement for this item, although low, is likely being inflated by chance agreement.

In addition to kappa and the proportions of agreement, an important method of quantifying the level of agreement between two raters for dichotomous variables is the odds ratio. This value conveys the relative increase in the odds of one rater making a particular rating given that the other rater had made the same rating. Perhaps the most useful feature of the odds ratio is its invariance, meaning that the value holds regardless of which rater is considered first and regardless of whether the rating is one of “yes” or “no.” Thus, unlike kappa, the odds ratio can be easily interpreted as a measure of the magnitude of association between two raters (Uebersax, 2001). To provide this information for the overall and pairwise reliability, Table A-1 presents mean odds ratios across the three pairs of raters as well as the range of these values for each PNCS item. When considering the results across rater pairs, the lowest odds ratio was found for first item on the coherence scale and the fourth item on the richness scale. While these mean odds ratios were at acceptable levels of 5.00 and 4.33 respectively, further examination of the pairwise odds ratios indicates questionable reliability for the fourth item of the richness scale. The range of odd ratios for this item indicates that for one of the rater pairs there was no relationship at all between their ratings ($OR = 1.00$).

Finally, the question of whether one rater in a given pair is applying their ratings in a biased manner can be addressed through tests of marginal homogeneity. The McNemar test is routinely used to test marginal homogeneity in any such table that has equal rows and columns (McNemar, 1947; Somes, 1983). It examines the tendency of

one rater in a pair to make a different rating than the other across all possible options. While disagreement between raters can be due to poor training or unreliable rating scales, it can also result from different coding propensities among the raters. Therefore, items that have poor interrater reliability according to other tests should be examined for marginal homogeneity before being excluded. The McNemar test returns a significance level value, from which significant findings can be interpreted as lacking marginal homogeneity. The range of these significance values across the three pairs of raters are presented in Table A-1. No propensities for different ratings were found among any of the pairings of the three raters and the expert. These results suggest that any previously observed disagreement between rater pairs cannot be attributed to consistent biases in coding.

The interrater reliability analysis for the application of the PNCS to participants' personal narratives suggested that some modifications were needed prior to conducting the general data analysis. The fourth item on the richness scale was the only item that failed to obtain an overall level of interrater agreement above that expected by chance. While this value approached significance, further analysis demonstrated that this item also had a low proportion of overall agreement and an unacceptable divergence between proportions of specific agreement. As a final check, the odds ratio value for this item proved to be the lowest overall among raters, with one rater pair failing to demonstrate any relationship at all between their ratings. Given that the ratings of this item across rater pairs showed no signs of consistent biases according to tests of marginal homogeneity, the observed lack of agreement is problematic. Consequently, the fourth item of the richness scale was eliminated from all subsequent data analysis.

Personal Narrative Data

Given that participants' narratives were comprised of responses to both an open-ended prompt and structured questions, narrative differences across these chapters were examined. Based on paired-samples t-tests, coherence scores were significantly higher during the open-ended first chapter ($t(96) = 4.71, p < .001, d = .37$), and richness scores were significantly higher during the structured second chapter ($t(96) = 6.46, p < .001, d = .68$)². The magnitude of these statistical differences resulted in part from the paired samples t-tests taking into account correlations between coherence ($r = .70, p < .001$) and richness ($r = .46, p < .001$) scores across chapters. Given these correlations, a decision was made to calculate mean coherence and richness scores across participants' two narrative chapters rather than examine narrative chapters separately in the data analysis. Means and standard deviations for these scores, along with the other continuous variables used in the analyses, are presented in Table A-2.

In an effort to control for an influence of extraneous variables, participant characteristics of age, sex, and racial composition were examined. A correlation matrix for the entire data analyses is presented in Table A-3. Pearson correlations conducted between each narrative scale and participant age were not significant. Spearman rank correlations conducted between each narrative scale and categorical variables of participant sex and race were not significant. These results suggested that the relationships between the narrative scales and other variables could reasonably be examined without further concern for the effects of participant characteristics.

² Given the documented likelihood of overestimating effect sizes in correlated designs such as paired samples t-tests, original group standard deviations were used (Dunlop, Cortina, Vaslow, & Burke, 1996).

Quality of the Distressing Event

In order to assess for a relationship between the quality of the distressing event and the narrative scales, the experimenter's subjective ratings were analyzed. Multivariate analyses of variance (MANOVAs) were conducted with coherence and richness serving as dependent variables. Independent variables consisted of the experimenter's categorical ratings of the severity and impact of the event. These analyses revealed that differences in the severity of the narrated event and its impact on participants were not significantly related to variations in either coherence or richness. As reported in Table A-3, correlational analyses indicated the lack of a significant relationship between each narrative scale and the length of time since the narrated event originally occurred. These findings lent support to the idea that any relationships observed between the narrative scales and other variables could not be attributed to variations in the time since the event occurred, its severity, or impact.

Self-Report and Potential Health Factors

Pearson correlations were conducted examining the relationship between individual differences in the personal narrative scales and variations in participants' reported physical symptoms and stress levels. Results are presented in Table A-3. Coherence was significantly correlated with physical symptoms ($r = -.34, p < .001$), with higher levels of coherence being related to lower levels of physical symptoms. Richness was significantly correlated with stress ($r = -.27, p < .01$), with higher levels of richness being related to lower levels of stress. Physical symptoms and stress were also significantly correlated to each other ($r = .32, p < .01$), with higher levels of symptoms being related to higher levels of stress.

To assess for a relationship between the narrative scales and the categorical variables related to potential health factors, separate ANOVAs were conducted. The infrequency of participants endorsing a family history of heart attack ($n = 7$) precluded this variable from being further analyzed. Means for narrative coherence and richness along the categorical variables of current medication use and family history of high blood pressure are reported in Table A-4. The analyses revealed a significantly lower mean coherence level among those participants who were currently taking prescribed medication versus those who were not ($F(1, 96) = 7.01, p < .01, d = .55$). A significantly lower mean coherence level was also observed among those participants with a family history of high blood pressure versus those without such a history ($F(1, 96) = 5.01, p < .05, d = .46$). No differences were observed for richness.

Forgiveness and Empathy

Stepwise multiple regression analyses were conducted examining the degree to which individual differences in the personal narrative scales could account for variations in participants' reported levels of forgiveness and empathy towards their offender(s). According to respective hypotheses, regressions were completed for the entire sample using coherence, richness, and an interaction term as predictor variables. Results are reported in Table A-5. Although the product of predictor variables is often used as the interaction terms in such analyses, this situation can create problems in sorting out the respective variance (Howell, 2002). For these and all subsequent regression analyses, the interaction term was based on the product of the centered values for the narrative scales. This approach does not affect the overall result of the test statistic. However, if the interaction term is involved, the partitioning of that variability among the three sources is

simplified with centered variables. Coherence alone accounted for a significant proportion of the variance in predicting forgiveness ($F(1, 94) = 9.56, p < .01$). Higher levels of coherence were related to lower levels of forgiveness. Coherence alone also accounted for a significant proportion of the variance in predicting empathy ($F(1, 95) = 8.49, p < .01$). Higher levels of coherence were related to lower levels of empathy.

Physiological Functioning

General Effects of the Narrative Interview

Prior to examining the relationships between specific moments of physiological functioning and the narrative scales, the overall effect of the personal narrative interview procedure was analyzed across all participants. Means for HR and MAP during each experimental segment are reported in Table A-2.

A repeated measures ANOVA revealed significant differences in mean HR between the rest, narrative, and recovery segments ($F(2, 180) = 41.37, p < .001$). Planned post-hoc contrasts found that mean HR was greater during the narrative segment than during rest ($t(92) = 8.16, p < .001$) and recovery ($t(90) = 7.01, p < .001$). Mean HR during recovery was significantly greater than during rest ($t(90) = 2.02, p < .05$). Similarly, a repeated measures ANOVA revealed significant differences in mean MAP between the rest, narrative, and recovery segments ($F(2, 190) = 156.58, p < .001$). Planned post-hoc contrasts found that mean MAP was greater during the narrative segment than during rest ($t(95) = 15.92, p < .001$) and recovery ($t(95) = 11.64, p < .001$). Mean MAP during recovery was significantly greater than during rest ($t(95) = 6.23, p < .001$). These results suggested that the experimental procedure of having participants narrate about a distressing event of betrayal coincided with significant increases in mean HR and MAP

levels from the rest to the narrative segments. While the mean levels of these measures then significantly decreased during the recovery segment, they remained significantly higher than those observed during the rest segment.

Physiological Effects Across Segments

Stepwise multiple regression analyses were performed to determine the degree to which individual differences in the narrative scales could account for variations in mean physiological measures within each experimental segment. Regressions were completed for the entire sample using coherence, richness, and an interaction term to predict mean levels of HR and MAP in each of the three experimental segments. Results indicated that there was no significant relationship between coherence, richness, or their interaction, and mean HR levels during the rest, narrative, and recovery segments. Similarly, there was no significant relationship between the predictor variables and mean MAP levels during any of the three experimental segments. These results suggested that although the task of narrating about a distressing event had significant effects on mean physiological variables, the observed changes could not be accounted for in any consistent manner by individual differences in the narrative scales.

Physiological Reactivity and Recovery

Means and standard deviations of HR and MAP reactivity and recovery scores are reported in Table A-2. Stepwise multiple regression analyses were conducted examining the degree to which individual differences in the narrative scales could account for variations in physiological reactivity and recovery in response to the narration task. Regressions were performed to assess the ability of narrative coherence, richness, and an interaction term to predict mean changes in HR and MAP at the beginning of both the

narrative and recovery segments. Regressions were completed for the entire sample as a whole and the results are reported in Table A-6. Coherence alone accounted for a significant proportion of the variance in both HR reactivity ($F(1, 90) = 8.62, p < .01$) and HR recovery ($F(1, 90) = 4.70, p < .05$). Higher levels of coherence were related to greater reactivity and recovery in HR. Richness alone accounted for a significant proportion of the variance in MAP reactivity ($F(1, 95) = 4.76, p < .05$). Higher levels of richness were related to greater reactivity in MAP. No variables accounted for a significant amount of the variance in predicting MAP recovery.

IV. DISCUSSION

The current study sought to extend the existing literature on the relationship between the expression of past distressing experiences and current functioning. The specific relationships of interest were those between individual differences in the form of personal narratives about distressing interpersonal experiences and variations in measures of physical, psychological, and physiological functioning. Ninety-seven undergraduate students participated by providing information concerning their physical and psychological functioning in several areas. They also generated personal narratives about an interpersonal experience of betrayal while being physiologically monitored. This data was analyzed in accordance with several hypotheses generated from theoretical understandings of the function of personal narrative as well as relevant empirical research on narrative expression and coping responses to distressing experiences.

Results Revisited

Participant Variables and the Quality of the Distressing Event

Prior to examining the specific hypotheses generated for the current study, the potential relationships between the personal narrative scales, participant variables, and the quality of the distressing event were assessed. Differences in coherence and richness were not significantly related to participants' age, sex, or race. In addition, neither coherence nor richness differed significantly based on the experimenters' appraisals of the impact and severity of the narrated event. These findings supported the conclusion that any observed relationships between the personal narrative scales and other variables could not be attributed to variations in participant variables or the quality of the distressing event.

Physical and Psychological Health Factors

Coherence and richness were hypothesized to be inversely correlated with physical symptoms. The results supported this hypothesis in part. There was a significant inverse correlation between narrative coherence and physical symptoms ($r = -.34$).

Coherence and richness were also hypothesized to be inversely related to stress. The results again supported this hypothesis in part. There was a significant inverse correlation between narrative richness and stress ($r = -.27$). These findings supported a general trend in past research indicating that the ability to generate a structured, thorough, and open summary of a distressing experience is connected to lower levels of physical symptoms and subjective stress. As might have been expected, physical symptoms and stress were themselves significantly correlated in a direct manner ($r = .32$). Interestingly though, the narrative scales were uniquely related to these two measures.

Lower levels of narrative coherence and richness were hypothesized to occur among participants reporting current medication use and a positive family history for heart attack and high blood pressure. Because of the infrequency of occurrence for family history of heart attack among participants, this variable had to be excluded from the analysis. The results supported the remaining hypotheses, but only for one narrative scale. Significantly lower levels of coherence were found among those participants who were currently taking prescribed medication ($d = .55$) as well as those with a family history of high blood pressure ($d = .46$). While there was no precedent for using these indices of physical health in the narrative expression literature, the resulting group effect sizes are comparable to the mean weighted effect size reported by Smyth (1998) for all measured outcomes in the narrative expression procedure ($d = .47$).

The results of analyses focusing on physical and psychological health factors indicated that narrative coherence was significantly related to both physical symptoms and potential health indices. These findings are in part explained by the fact that the majority of studies in the literature have focused more on the coherence of shared personal experiences in relation to physical symptoms and outcomes. Given that richness is less well documented in this relationship, the likelihood of finding a reliable relationship between it and indices of physical health may have been quite low. However, the significance of the observed relationships should not be overlooked as a simple reiteration of previous findings. In the current study, participants reported on a broad array of common physical symptoms and several specific, dichotomous factors that could potentially yield information about the state of their physical health. Their shared personal narratives focused on a specific event that on average occurred five years prior to the current assessment. Despite the apparent gap between one's current physical symptoms and the structure of a narrated experience that occurred years previously, the variables still demonstrated a significant relationship. Similarly, the richness of these accounts demonstrated a significant relationship to current levels of stress. Although such a relationship is less studied, previous research has indicated that higher levels of subjective stress may be more common among individuals who have difficulty relating an open, detailed, elaborative expression of one's experience. The current findings suggest this relationship can be investigated further using measure of personal narrative form.

Although current medication use and a family history of high blood pressure would appear to be relatively diluted indices of one's current physical health, significantly lower levels of coherence were still observed among these participants. A

potential explanation for these findings, as well as those with physical symptoms and stress, is that the assessed levels of coherence and richness in the experimental personal narrative are not unique to the one specific distressing experience. Instead, coherence and richness are more likely to be related to certain characteristics of that individual's narrative that are present across all efforts to express his or her experience. The coherence and richness of participants' narrative accounts of their incidents of betrayal are likely related to their coherence and richness in other personal narratives of distressing experiences. The demonstrated relationships thus would appear to support a general contention of previous research that impairments in physical functioning and health are more common among individuals who have difficulty construing their personal experiences in a structured, organized, and comprehensible manner.

Forgiveness and Empathy

Experiences of betrayal were selected as the distressing event in the current study in order to explore two hypotheses concerning forgiveness and empathy. First, coherence and richness were hypothesized to be predictive of the level of forgiveness participants felt towards their offenders, with higher levels of the narrative scales resulting in greater forgiveness. Second, coherence and richness were hypothesized to be predictive of the level of empathy participants felt towards their offenders, with higher levels of the narrative scales resulting in greater empathy. The results supported the hypotheses in part, but in the opposite direction than was predicted. Coherence accounted for a significant proportion of the variance in forgiveness (9%), but higher levels of coherence were related to lower levels of forgiveness. Coherence also accounted for a significant proportion of the variance in empathy (8%), but again higher levels of coherence were

related to lower levels of empathy. The hypotheses were based on theoretical understandings of forgiveness and empathy towards offenders as resulting from a thorough processing of one's experience either over time or through repeated reexaminations. A similarity between findings for those failing to forgive and those who are unable to produce coherent accounts of their experiences was also detected in the literature. In addition, empathy appeared to be an important tool for individuals who were able to construct coherent and rich personal narratives for their audiences. The current findings suggest that these similarities may be unrelated to forgiveness and empathy experienced directly towards offenders who are the subject of the given narrative. The more consistent, logical, and comprehensible the participant's personal narratives, the less likely he or she was to acknowledge forgiving and empathizing with their identified offenders. In fact, this type of processing and the production of a coherent narrative was related to less expression of forgiveness and empathy towards the offender. A possible interpretation for this finding is that the level of coherence actually promoted a depth of processing the experience that put participants in greater touch with their feelings about having been betrayed. Expressing forgiveness and empathy towards the offender might have come easier to participants who were less engaged with the experience and created less coherent narratives.

Physiological Responsivity

The task of narrating about a distressing experience was hypothesized to significantly increase mean HR and MAP levels from baseline, while ceasing to narrate about this experience was hypothesized to return HR and MAP to baseline levels. The results supported this hypothesis in part. Participants' mean HR and MAP was

significantly higher during the narrative segment than during the rest and recovery segments. The task of narrating about a distressing interpersonal experience of betrayal clearly prompted significant increases in physiological arousal. In addition, ceasing the narration coincided with significant reductions in these same physiological measures. These findings support previous research suggesting that narrating about a distressing event produces marked increase in physiological responses. However, mean HR and MAP levels did not return to the baseline levels established during the rest segment. During the recovery segment, the participants took several minutes to relax and then continued to complete questionnaires regarding their distressing experience. Because these questions may have continued to bring about physiological arousal, recovery segment means were based only on the initial minutes of this period. Therefore, a possible interpretation of this finding suggests that the recovery time utilized by participants may not have been sufficiently long to allow for a return of physiological measures to baseline levels.

Narrative coherence and richness were hypothesized to be unrelated to mean physiological measures during the rest and recovery segments, yet able to account for a significant amount of the variance during the narrative segment. Higher levels of coherence and richness were thought to be predictive of higher mean levels of HR and MAP during narration. As predicted, results did not detect a significant relationship between the narrative scales and mean HR and MAP levels during the rest and recovery segments. However, neither coherence nor richness predicted a significant amount of the variance in these measures during the narrative segment. The findings support previous research indicating that relationships between baseline physiology and responses to

distressing and traumatic experiences are primarily observed among individuals with clear PTSD presentations. However the data contradict earlier investigations that demonstrated individuals who had difficulty expressing themselves experienced less physiological arousal during the actual recounting of a distressing event. The current results suggested that although the task of narrating about a distressing event had significant effects on mean physiological variables across all participants, the observed changes could not be accounted for in any consistent manner by individual differences in narrative form.

Coherence and richness were hypothesized to account for a significant amount of the variance in physiological reactivity at the beginning of the narration about a distressing experience. Higher levels of the narrative scales were thought to be related to greater increases in physiological measures relative to mean arousal at baseline. The results supported the hypothesis in part. Coherence alone accounted for a significant proportion of the variance in HR reactivity (9%) with higher levels of coherence being related to greater HR reactivity. Similarly, richness alone accounted for a significant proportion of the variance in MAP reactivity (5%), with higher levels again being related to greater reactivity.

Coherence and richness were also hypothesized to account for a significant amount of the variance in physiological recovery after the conclusion of narrating about a distressing experience. Higher levels of the scales were thought to be related to greater decreases in physiological measures relative to mean arousal during narration. The results indicated that coherence alone accounted for a significant proportion of the variance in

HR recovery (5%), with higher levels related to greater decreases in HR. Neither narrative scale accounted for a significant proportion of the variance in MAP recovery.

Physiological arousal is a key component of the mental representation and recall of distressing experiences. Previous research has suggested that for individuals who have difficulty coping with such experiences, heightened physiological arousal and responsivity can become the primary means through which these experiences are carried forward (e.g., Foa & Kozac, 1986; McFarlane, 1992; van der Kolk, 1994; van der Kolk & van der Hart, 1991). Despite this baseline autonomic dysregulation and lack of declarative knowledge, those who cope repressively or exhibit PTSD-like reactions have been observed to physiologically respond less than controls while recounting the actual distressing experience (Cohen et al., 1998). As a distressing experience is integrated into existing knowledge structures and becomes available for narration, individuals remain physiologically reactive to the stimulus. Yet, they experience less dysregulation in baseline physiological arousal. The hypotheses concerning physiological reactivity and recovery were based on the notion that higher levels of narrative coherence and richness would be observed among participants with a greater level of integration of the distressing experience. Increased integration was assumed to predict greater reactivity and recovery of HR and MAP specific to the stressful stimuli. The findings that emerged were in keeping with this assumption. Higher levels of narrative coherence and richness were predictive of increased physiological arousal during reexposure to elements of the distressing experience. A structured, thorough, and open processing of one's experience likely requires a level of engagement with the distressing material that is accompanied by physiological reactivity exceeding that observed among participants who cope more

repressively. As a result, recovery from this level of arousal also becomes a necessity for these individuals. The current results suggest that at least in terms of regulating HR, those individuals who produce a coherent account of distressing experiences are more likely to experience the necessary decrease in arousal to counter their greater reactivity.

Findings in Context

The current study began by framing an important concept in behavioral science concerning the transaction between past experience and present functioning. In its most basic form, the concept holds that present functioning cannot occur in isolation from the experiences and history of functioning that have preceded it. The problem facing research that either specifically investigates this concept or merely relies on it as an assumptive foundation is the difficulty of operationalizing and assessing the means through which past experience is carried forward. The current study capitalizes on previous theoretical and empirical work in social cognition, object relations, and developmental traditions by suggesting that personal narratives offer a medium through which the transaction process can be investigated further. More importantly, it calls attention to the fact that rather than the nature of the original experience, what may be most relevant to an individual's current functioning is the way in which they represent and construe this information.

For nearly two decades a group of researchers have been exploring the physical and psychological effects of expressing traumatic and distressing personal experiences through narrative (for reviews, see Pennebaker & Seagal, 1999; Smyth, 1998; Smyth & Pennebaker, 1999). Based in large part on theoretical models of the inhibition of emotional expression, this research has made an effort to examine the more molar effects of how changes in one's efforts to deal with past experience through narrative expression

can alter the related functioning (Derlega, Metts, Petronio, & Margulis, 1993; Jourard, 1971; Pennebaker, 1985; 1989). Repressive coping is known to have negative consequences for physical, psychological, and physiological functioning (e.g., Barger, Marsland, Bachen, & Manuck, 2000; Burnum, 1991; Esterling, Antoni, Kumar & Schneiderman, 1990; King, Taylor, Albright, & Haskell, 1990; Kissen, 1966; Larson, 1990; Pennebaker & Hoover, 1986; Pennebaker & O'Heeron, 1984). In contrast, expressive responses to trauma and distress are beginning to yield many positive findings in terms of current functioning (e.g., Berkowitz & Troccoli, 1990; Goldstein, Edelberg, Meier, & Davis, 1988; Greenberg & Stone, 1992; Greenberg, Wortman, & Stone, 1996; Keltner, Locke, & Audrain, 1993; Lepore, Ragan, & Jones, 2000). The implication of such work is that coping and integration of a personal experience, particularly one that is distressing in nature, requires a structured, thorough, and open processing of the remembered or represented event (Foa, Raghbaum, & Molnar, 1995).

Despite a few studies interested in the linguistic properties of individuals' efforts to express their distressing experiences in narrative form, the narrative expression research has largely ignored the issue of whether individual differences in the process of narrating distressing experiences has any bearing on the observed effects. As a result, the positive findings of these studies have often led to broad conclusions being drawn about the general benefit of coping with a distressing experience in an open, structured, and expressive manner. The current study sought to investigate the role of individual differences in personal narrative form in the relationship between narrative expression and current functioning. A primary assumption in forming hypotheses in the current study was that repressive responses to past distressing experiences are unlikely to yield

coherent, rich personal narratives, while expressive responses would. This assumption was based on research indicating that repressive copers as well as individuals who have experienced traumatic and distressing events often have difficulty forming personal narratives of their experiences and gaining access to relevant details (Myers & Brewin, 1995; Meyers, Brewin, & Power, 1998; Newman & Hedberg, 1999; Rauch et al., 1996; van der Kolk & Fisler, 1995). Thus narrative coherence and richness might be linked to indicators of current functioning. The results of the current study suggest that the ways in which an individual represents and subsequently narrates his or her previous distressing experiences are indeed related to present functioning. Consequently, the broad conclusions drawn from the observed effects in the narrative expression literature likely require a degree of revision.

Individuals who are capable of producing a more coherent personal narrative of their distressing experiences tend to experience greater physical health, while those producing a richer account tend to experience less general stress. Taken together these findings suggest that the form of personal narratives likely has a mediating role in the previously documented relationship between narrative expression interventions and subsequent benefits to physical functioning. In further extending this research, the current study provided evidence that physiological reactivity to and recovery from narrating distressing experiences are related to the coherence and richness of the personal narrative form. The findings suggest that a structured, thorough, and elaborative processing of one's past distressing experience actually predicts a greater level of physiological reactivity during narration. Although previous studies have documented physiological arousal in the absence of declarative knowledge for a distressing experience (e.g., Foa &

Riggs, 1993; van der Kolk & van der Hart, 1991), the observed reactivity in the current study was associated with more coherent and rich personal narratives during the recounting of the distressing event. The capacity to generate a coherent and rich personal narrative about distressing experiences may serve as a buffer against general autonomic dysregulation, physical symptoms, and stress, while still being related to increased physiological reactivity during reencounters with the stressor. Importantly, coherent narrative processing of the experience also predicted greater physiological recovery of HR, suggesting that the initial reactivity to narrating is fairly well controlled.

Limitations and Future Directions

Given the central role of personal narrative data in the current study, any examination of potential confounds and limitations must consider the methods for eliciting and quantifying the narrative scales of coherence and richness. Among one of the concerns that have lingered throughout the development and application of the PNCS is the means through which personal narratives should be elicited and recorded. Certainly a focus on consistency in the interview procedures and documenting reliability in the application of the PNCS addresses many of these concerns. However, a remaining issue is the degree to which the transcription process may obscure various qualities of the individual's personal narrative production that can only be fully appreciated within the interpersonal context in which it was originally constructed. A valid concern is that certain individuals may achieve coherency and richness in their personal narratives by relying on features of communication that are not easily captured by written transcripts and scales based on dichotomous scoring (i.e., intonation, inflection, facial expression). Previous consideration has been given to having coders apply the PNCS while working

from some combination of transcripts and audio or videotapes of the participants' narration, but this scenario raises new concerns over the degree to which factors such as physical appearance might alter a coder's opinion about the narrative scales. As a result, applying the PNCS to written transcripts alone continues to be the preferred method of quantifying the form of personal narratives. Yet this choice is not made without consideration given to the potential loss of relevant information.

An additional limitation of the current study was the reliance on single indices of criterion and grouping variables. In retrospect, the use of multiple measures of variables for physical functioning, stress, forgiveness, empathy, and negative health indicators would have given the opportunity to increase the robustness and specificity of the results. In addition, these variables were based on self-report indices that are subject to the known criticisms of relying on participants' perceptions of their functioning. Whereas previous research on the physical and psychological outcomes of narrative expression has sought out independent sources of data such as health records and immunological measures, this was beyond the scope of the current study. As a result, greater emphasis was placed on using physiological measures as an independent data source of current functioning. As future studies seek to replicate and expand upon these findings, the use of multiple measures of criterion and grouping variables, as well as the application of diverse measures to assess for variations in the nature of the relationships, seems indicated.

A significant lingering question is whether the observed individual differences in personal narrative form were unique to the identified experience. Earlier research with the PNCS has documented strong correlations between an individual's coherence and

richness across distinct personal narratives (Rogers, 2000). In addition, the observed relationships between broad indices of general functioning and narrative form in the assessed personal narratives seems best explained by the idea that participants' levels of coherence and richness are related to their narrative form for numerous other experiences as well. The primary hypothesis is that the relationships to more global variables such as physical symptoms and stress are mediated by more trait-like abilities in constructing coherent and rich personal narratives. Experience specific variables such as forgiveness, empathy, and physiological arousal while narrating about that event would appear to be impacted to a greater degree by the specific nature of the experience and its construal. However, these are empirical questions that can be addressed. Previous studies have utilized separate control groups narrating trivial topics to establish the overall effect of having individual express distressing events. However, the current results raised new issues about whether the observed relationship between the narrative form and aspects of one's functioning are specific to the distressing narrative or are more trait like qualities that can be observed across all type of narrative productions. In reviewing the methodology of the current study, perhaps a great deal of information could have been gathered from having each participant serve as his or her own control. Future studies could have participants create personal narratives about both a distressing experience and a trivial topic. Narratives about trivial experiences could then be used for comparison, yielding information about the degree to which observed relationships between narrative form and current functioning are unique to distressing experiences as well as the degree to which these relationships are unique to the narrator.

REFERENCES

- Abelson, R. P. (1981). Psychological status of the script concept. *American Psychologist*, 36, 715-729.
- Adler, A. (1924). *The practice and theory of individual psychology*. Oxford, England: Humanities Press.
- Ainsworth, M. D. S. (1982). Attachment: Retrospect and prospect. In C. M. Parkes & J. Stevenson-Hinde (Eds.), *The place of attachment in human behavior* (pp. 3-30). New York: Basic Books.
- Albarracin, D., & Wyer, R. S. Jr. (2000). The cognitive impact of past behavior: Influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology*, 79, 5-22.
- Ammaniti, M., & Stern, D. N. (1994). *Psychoanalysis and development: Representations and narratives*. New York University Press.
- Antonovsky, A. (1987). *Unraveling the mystery of health: How people manage stress and stay well*. San Francisco: Jossey-Bass/Pfeiffer.
- Antonovsky, A. (1998). The sense of coherence: An historical and future perspective. In H. I. McCubbin, E. A. Thompson, A. I. Thompson, & J. E. Fromer (Eds.), *Stress, coping, and health in families: Sense of coherence and resiliency* (pp. 3-20). Thousand Oaks, CA: Sage Publications, Inc.
- Applebee, A. N. (1978). *The child's concept of story: Ages two to seventeen*. University of Chicago Press.
- Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (1993). A psychometric study of the Adult Attachment Interview: Reliability and discriminant validity. *Developmental Psychology*, 29, 870-880.

- Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin, 112*, 461-484.
- Bamberg, M. (Ed.). (1997). *Narrative development: Six approaches*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Barger, S. D., Marsland, A. L., Bachen, E. A., & Manuck, S. B. (2000). Repressive coping and blood measures of disease risk: Lipids and endocrine and immunological responses to a laboratory stressor. *Journal of Applied Social Psychology, 30*, 1619-1638.
- Ben-Porath, Y. S., & Tellegen, A. (1990). A place for traits in stress research. *Psychological Inquiry, 1*, 14-17.
- Beres, D., & Joseph, E. (1970). The concept of mental representation in psychoanalysis. *International Journal of Psycho-Analysis, 51*, 1-9.
- Berk, M. S., & Anderson, S. M. (2000). The impact of past relationships on interpersonal behavior: Behavioral confirmation in the social-cognitive process of transference. *Journal of Personality and Social Psychology, 79*, 546-562.
- Berkowitz, L., & Troccoli, B. T. (1990). Feelings, direction of attention, and expressed evaluations of others. *Cognition and Emotion, 4*, 305-325.
- Blackburn, R. (1965). Emotionality, repression, sensitization, and maladjustment. *British Journal of Psychiatry, 11*, 399-400.
- Blatt, S. J., Auerbach, J. S., & Levy, K. N. (1997). Mental representation in personality development, psychopathology, and therapeutic process. *Review of General Psychology, 1*, 351-374.

- Blatt, S. J., & Lerner, H. (1983). Psychodynamic perspectives on personality theory. In M. Hersen, A. E. Kazdin, & A. S. Bellack (Eds.), *The clinical psychology handbook* (pp. 87-106). New York: Pergamon Press.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2 Separation: Anxiety and anger*. New York: Basic Books.
- Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. New York: Basic Books.
- Braid, D. (1996). Personal narrative and experiential meaning. *Journal of American Folklore*, 109, 5-30.
- Breuer, J., & Freud, S. (1957). Studies on hysteria. In J. Strachey (Ed. and Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 2, pp. 1-241). London: Hogarth Press. (Original work published 1895)
- Brooks, P. (1984). *Reading for the plot*. New York: Vintage.
- Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1994). The narrative construction of "reality." In M. Ammaniti & D. N. Stern (Eds.), *Psychoanalysis and development: Representations and narratives* (pp. 15-38). New York University Press.
- Bucci, W. (1995). The power of the narrative: A multiple code account. In J. W. Pennebaker (Ed.), *Emotion, disclosure, & health* (pp. 93-122). Washington, DC: American Psychological Association.

- Burnum, J. F. (1991). Secrets about patients. *New England Journal of Medicine*, 324, 1130-1133.
- Callahan, L. F., & Pincus, T. (1995). The Sense of Coherence Scale in patients with rheumatoid arthritis. *Arthritis Care and Research*, 8, 28-35.
- Cameron, L. D., & Nicholls, G. (1988). Expression of stressful experiences through writing: Effects of a self-regulating manipulation for pessimists and optimists. *Health Psychology*, 17, 84-92.
- Cantor, N., & Kihlstrom, J. F. (1985). Social intelligence: The cognitive basis of personality. *Review of Personality and Social Psychology*, 6, 15-33.
- Cantor, N., & Mischel, W. (1979). Prototypes in person perception. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 3-52). San Diego, CA: Academic Press.
- Cantor, N., Mischel, W., & Schwartz, J. C. (1982). A prototype analysis of psychological situations. *Cognitive Psychology*, 14, 45-77.
- Carr, D. (1986). Narrative and the real world: An argument for continuity. *History and Theory*, 25, 117-131.
- Castlebury, F. D. (1998). Caregiver personal narrative as guidance in children's socialization (Doctoral dissertation, University of Tennessee, Knoxville, 1998). *Dissertation Abstracts International*, 61 (2-B), 1074.
- Castlebury, F. D., & Wahler, R. G. (1998). *Guidelines in coding the personal narratives of children, parents, and teachers*. Unpublished manuscript, University of Tennessee, Knoxville.

- Cicchetti, D. V., & Feinstein, A. R. (1990a). High agreement but low kappa I: The problems of two paradoxes. *Journal of Clinical Epidemiology*, 43, 543-550.
- Cicchetti, D. V., & Feinstein, A. R. (1990b). High agreement but low kappa II: Resolving the paradoxes. *Journal of Clinical Epidemiology*, 43, 551-558.
- Clark, L. A., & Watson, D. (1991). General affective dispositions in physical and psychological health. In C. R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology: The health perspective* (pp. 221-245). Elmsford, NY: Pergamon Press, Inc.
- Clark, L. F. (1993). Stress and the cognitive-conversational benefits of social interaction. *Journal of Social and Clinical Psychology*, 12, 25-55.
- Cohen, C. E. (1981). Person categories and social perception: Testing some boundaries of the processing effects of prior knowledge. *Journal of Personality and Social Psychology*, 40, 441-452.
- Cohen, H., Kotler, M., Matar, M. A., Kaplan, Z., Loewenthal, U., Miodownik, H., et al. (1998). Analysis of heart rate variability in posttraumatic stress disorder patients in response to a trauma-related reminder. *Biological Psychiatry*, 44, 1054-1059.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, 10, 37-46.
- Cohen, S., & Hoberman, H. M. (1983). Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology*, 13, 99-125.
- Coke, J. S., Batson, C. S., & McDavis, K. (1978). Empathic mediation of helping: A two-stage model. *Journal of Personality and Social Psychology*, 36, 752-766.

- Costa, P. T. (1987). Influence on the normal personality dimension of neuroticism on chest pain symptoms and coronary artery disease. *American Journal of Cardiology*, 60, 20-26.
- Coyle, C. T., & Enright, R. D. (1997). Forgiveness intervention with postabortion men. *Journal of Consulting and Clinical Psychology*, 65, 1042-1046.
- Culler, J. (1982). *On deconstruction: Theory and criticism after structuralism*. Ithaca, NY: Cornell University Press.
- Davies, M. (1970). Blood pressure and personality. *Journal of Psychosomatic Research*, 14, 89-104.
- Derlega, V. J., Metts S., Petronio, S., & Margulis, S. T. (1993). *Self-disclosure*. Thousand Oaks, CA: Sage Publishers, Inc.
- DeSavino, P., Turk, E., Massie, E., Riggs, D., Penkower, D., Molnar, C., et al. (1993). *The content of traumatic memories: Evaluating treatment efficacy by analysis of verbatim descriptions of the rape scene*. Paper presented at the 27th Annual Meeting of the Association for the Advancement of Behavior Therapy, Atlanta, Georgia.
- Dominguez, B., Valderama, P., Meza, M., Perez, S., Silva, A., Martinez, G., et al. (1995). The roles of emotional reversal and disclosure in clinical practice. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp. 255-270). Washington, DC: American Psychological Association.
- Donnelley, D. A., & Murray, E. J. (1991). Cognitive and emotional changes in written essays and therapy interviews. *Journal of Social and Clinical Psychology*, 10, 334-350.

- Eisenberg, A. R. (1985). Learning to describe past experiences in conversation. *Discourse Processes*, 8, 177-204.
- Eisenmann, B. (1997). Gender differences in early mother-child interactions: Talking about an imminent event. *Discourse Processes*, 24, 309-335.
- Epstein, S. (1973). The self-concept revisited. *American Psychologist*, 28, 404-416.
- Esterling, B. A., Antoni, M. H., Fletcher, M. A., Margulies, S., & Schneiderman, N. (1994). Emotional disclosure through writing or speaking modulates latent Epstein-Barr virus reactivation. *Journal of Consulting and Clinical Psychology*, 62, 130-140.
- Esterling, B. A., Antoni, M. H., Kumar, M., & Schneiderman, N. (1990). Emotional repression, stress disclosure response and Epstein-Barr viral capsid antigen titers. *Psychosomatic Medicine*, 52, 397-410.
- Fairbairn, W. R. D. (1954). *An object relations theory of the personality*. New York: Basic Books.
- Finkel, E. J., Rusbult, C. E., Kumashino, M., & Hannon, P. A. (2002). Dealing with betrayal in close relationships: Does commitment promote forgiveness? *Journal of Personality and Social Psychology*, 82, 956-974.
- Fiske, S. T., & Taylor, S. E. (1984). *Social cognition*. New York: Random House.
- Fivush, R. (1991). The social construction of personal narratives. *Merrill-Palmer Quarterly*, 37, 59-82.
- Fivush, R., & Fromhoff, F. A. (1988). Style and structure in mother-child conversations about the past. *Discourse Processes*, 11, 337-355.

- Fivush, R., Gray, J. T., & Fromhoff, F. A. (1987). Two year olds talk about the past. *Cognitive Development, 2*, 393-410.
- Fivush, R., & Haden, C. A. (1997). Narrating and representing experience: Preschoolers' developing autobiographical accounts. In P. W. van den Broek & P. J. Bauer (Eds.), *Developmental spans in event comprehension and representation: Bridging fictional and actual events* (pp. 169-198). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Fivush, R., Haden, C., & Adam, S. (1995). Structure and coherence of preschoolers' personal narratives over time: Implications for childhood amnesia. *Journal of Experimental Child Psychology, 60*, 32-56.
- Fivush, R., & Hudson, J. A. (Eds.). (1990). *Knowing and remembering in young children*. New York: Cambridge University Press.
- Fivush, R., Kuebli, J., & Clubb, P. (1992). The structure of events and event representations. *Child Development, 63*, 188-201.
- Fivush, R., & Mandler, J. M. (1985). Developmental changes in the understanding of temporal sequence. *Child Development, 56*, 1437-1446.
- Foa, E. B., & Kozac, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin, 99*, 20-35.
- Foa, E. B., Molnar, C., & Cashman, L. (1995). Change in rape narratives during exposure therapy for posttraumatic stress disorder. *Journal of Traumatic Stress, 8*, 675-690.
- Foa, E., & Riggs, D. (1993). Posttraumatic stress disorder in rape victims. *American Psychiatric Press Review of Psychiatry, 12*, 273-303.

- Foa, E., Raghbaum, B., & Molnar, C. (1995). Cognitive-behavioral treatment of posttraumatic stress disorder. In M. J. Friedman, D. S. Charney, & A. Y. Deutch (Eds.), *Neurobiological and clinical consequences of stress: From normal adaptation to posttraumatic stress disorder* (pp. 483-494). Philadelphia: Lippincott-Raven.
- Folkman, S., Lazarus, R. S., Gruen, R. J., & DeLongis, A. (1986). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology*, 50, 571-579.
- Fonagy, P., Steele, H., & Steele, M. (1991). Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. *Child Development*, 62, 891-905.
- Fox, N. A. (1995). Of the way we were: Adult memories about attachment experiences and their role in determining infant-parent relationships: A commentary on van IJzendoorn. *Psychological Bulletin*, 117, 404-410.
- Francis, M. E., & Pennebaker, J. W. (1993). Putting stress into words: The impact of writing on physiological, absentee, and self-reported emotional well-being measures. *American Journal of Health Promotion*, 6, 280-287.
- Freedman, S. R., & Enright, R. D. (1996). Forgiveness as an intervention goal with incest survivors. *Journal of Consulting and Clinical*, 64, 983-992.
- Freeman, M. (1993). *Rewriting the self: History, memory, narrative*. London: Routledge.
- Freeman, M. (1997). Why narrative? Hermeneutics, historical understanding, and the significance of stories. *Journal of Narrative and Life History*, 7, 169-176.

- Freud, S. (1953). Fragment of an analysis of a case of hysteria. In J. Strachey (Ed. and Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 7, pp. 7-122). London: Hogarth Press. (Original work published 1905)
- Freud, S. (1958). The dynamics of transference. In J. Strachey (Ed. and Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 12, pp. 99-108). London: Hogarth Press. (Original work published 1912)
- Freud, S. (1962). Screen memories. In J. Strachey (Ed. and Trans.) *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 3, pp. 303-322). London: Hogarth Press. (Original work published 1899)
- Funari, E. (1994). The phenomenological dimension of representational activity. In M. Ammaniti & D. N. Stern (Eds.), *Psychoanalysis and development: Representations and narratives* (pp. 49-62). New York University Press.
- Genovese, C. (1994). The problem of representability. In M. Ammaniti & D. N. Stern (Eds.), *Psychoanalysis and development: Representations and narratives* (pp. 175-186). New York University Press.
- George, C., Kaplan, N., & Main, M. (1985). *Adult Attachment Interview*. Unpublished manuscript, University of California, Berkeley.
- Gergen, K. J. (1971). *The concept of the self*. New York: Holt, Rhinehart, & Winston.
- Gergen, K. J. & Gergen, M. M. (1988). Narrative and the self as relationship. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 17-56). San Diego, CA: Academic Press.

- Gidron, Y., Peri, T., Connolly, J. F., & Shalev, A. Y. (1996). Written disclosure in posttraumatic stress disorder: Is it beneficial for the patient? *Journal of Nervous and Mental Disease, 184*, 505-507.
- Ginsburg, G. P. (1988). Rules, scripts and prototypes in personal relationships. In S. W. Duck (Ed.), *Handbook of personal relationships* (pp. 23-39). New York: Wiley.
- Goldstein, H., Edelberg, R., Meier, C., & Davis, L. (1988). Relationship of blood pressure and heart rate to experienced anger and expressed anger. *Psychosomatic Medicine, 50*, 321-329.
- Greenberg, J. R., & Mitchell, S. A. (1983). *Object relations in psychoanalytic theory*. Cambridge, MA: Harvard University Press.
- Greenberg, M. A., & Stone, A. A. (1992). Emotional disclosure about traumas and its relation to health: Effects of previous disclosure and severity. *Journal of Personality and Social Psychology, 63*, 75-84.
- Greenberg, M. A., Wortman, C. B., & Stone, A. A. (1996). Emotional expression and physical health: Revising traumatic memories or fostering self-regulation? *Journal of Personality and Social Psychology, 71*, 588-602.
- Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics III: Speech acts* (pp. 41-58). San Diego, CA: Academic Press.
- Gubrium, J. F., & Holstein, J. A. (1998). Narrative practice and the coherence of personal stories. *Sociological Quarterly, 39*, 163-187.
- Guntrip, H. (1961). *Personality structure and human interaction*. New York: International University Press.

- Haden, C. A., Haine, R. A., & Fivush, R. (1997). Developing narrative structure in parent-child reminiscing across the preschool years. *Developmental Psychology*, 33, 295-307.
- Helen, A. M. (1990). Relapse to substance abuse: Empirical findings within a cognitive-social learning approach. *Journal of Psychoactive Drugs*, 22, 117-124.
- Henri, B., Moffitt, T. E., Avshalom, C., Langley, J., & Silva, P. A. (1994). On the “remembrance of things past”: A longitudinal evaluation of the retrospective method. *Psychological Assessment*, 6, 92-101.
- Hesse, E. (1999). The adult attachment interview: Historical and current perspectives. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 395-433). New York: Guilford Press.
- Higgins, E. T., & Bargh, J. A. (1987). Social cognition and social perception. *Annual Review of Psychology*, 38, 369-425.
- Hobbs, J. R. (1979). Coherence and coreference. *Cognitive Science*, 3, 67-90.
- Horowitz, M. (1986). *Stress response syndromes* (2nd ed.). New York: Jacob Aronson.
- Howard, G. (1991). Cultural tales: A narrative approach to thinking, cross-cultural psychology, and psychotherapy. *American Psychologist*, 46, 187-197.
- Howell, D. C. (2002). *Statistical methods for psychology* (5th ed.). Belmont, CA: Duxbury Press.
- Hudson, J. A. (1990). The emergence of autobiographic memory in mother-child conversations. In R. Fivush & J. A. Hudson (Eds.), *Knowing and remembering in young children* (pp. 166-196). New York: Cambridge University Press.

- Hudson, J. A., Fivush, R., & Kuebli, J. (1992). Scripts and episodes: The development of event memory. *Applied Cognitive Psychology*, 6, 483-505.
- Hudson, J. A., Gebelt, J., Haviland, J., & Bentivegna, C. (1992). Emotion and narrative structure in young children's personal accounts. *Journal of Narrative and Life History*, 2, 129-150.
- Hudson, J. A., & Shapiro, L. (1991). Effects of task and topic on children's narratives. In A. McCabe & C. Peterson (Eds.), *New directions in developing narrative structure* (pp. 89-136). Hillsdale, NJ: Erlbaum.
- Hugdahl, K. (1995). *Psychophysiology: The mind-body perspective*. Cambridge, MA: Harvard University Press.
- Jamner, L., Schwartz, G., & Leigh, H. (1988). The relationship repressive and defensive coping styles and monocyte, eosinophile, and serum glucose levels: Support for the opioid peptide hypothesis of repression. *Psychosomatic Medicine*, 50, 567-575.
- Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition*, 7, 113-136.
- Jorgensen, R. S., Frankowski, J. J., & Carey, M. P. (1999). Sense of coherence, negative life events and appraisal of physical health among university students. *Personality and Individual Differences*, 27, 1079-1089.
- Josselson, R. (1993). A narrative introduction. In R. Josselson & A. Lieblich (Eds.), *The narrative study of lives*. Newbury Park, CA: Sage.
- Jourard, S. M. (1971). *Self-disclosure: An experimental analysis of the transparent self*. Oxford, England: John Wiley.

- Kaiser, C. F., Sattler, D. N., Bellack, D. R., & Dersin, J. (1996). A conservation of resources approach to a natural disaster: Sense of coherence and psychological distress. *Journal of Social Behavior and Personality*, 11, 459-476.
- Keltner, D., Locke, K. D., & Audrain, P. C. (1993). The influence of attributions on the relevance of negative feelings to personal satisfaction. *Personality and Social Psychology*, 19, 21-29.
- Kerby, A. P. (1991). *Narrative and the self*. Bloomington: Indiana University Press.
- Kernberg, O. F. (1976). *Object relations theory and clinical psychoanalysis*. New York: Aronson.
- Kihlstrom, J. F., Cantor, N., Albright, J. S., Chew, B. R., Klein, S. B., & Niedenthal, P. M. (1988). Information processing and the study of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 145-178). San Diego, CA: Academic Press.
- King, A. C., Taylor, C. B., Albright, C. A., & Haskell, W. L. (1990). The relationship between repressive and defensive coping styles and blood pressure responses in healthy, middle-aged men and women. *Journal of Psychosomatic Research*, 34, 461-471.
- Kissen, D. M. (1966). The significance of personality in lung cancer in men. *Annals of the New York Academy of Science*, 67, 123-164.
- Klein, M. (1964). *Contributions to psychoanalysis, 1921-1945*. New York: McGraw-Hill.
- Kohler, W. (1947). *Gestalt psychology*. New York: Liveright.

- Kohn, P. M., Lanfreniere, K., & Gurevich, M. (1990). The inventory of college students' recent life experiences: A decontaminated hassles scale for a special population. *Journal of Behavioral Medicine, 13*, 619-630.
- Krantz, A. M. (1994). Dancing out trauma: The effects of psychophysical expression on health. (Doctoral dissertation, California School of Professional Psychology, 1994). *Dissertation Abstracts International, 54* (9-B), 4924.
- Labov, W., & Fanshel, D. (1977). *Therapeutic discourse*. New York: Academic Press.
- Larson, D. (1990). Self-concealment: Conceptualization, measurement, and health implications. *Journal of Social and Clinical Psychology, 9*, 439-455.
- Lavelle, E. (1997). Writing style and the narrative essay. *British Journal of Educational Psychology, 67*, 475-482.
- Lazarus, R. S., & Folkman, S. (1986). Cognitive theories of stress and the issue of circularity. In M. H. Appley & R. Trumbull (Eds.), *The Plenum series on stress and coping* (pp. 63-80). New York: Plenum Press.
- Lepore, S. J., Ragan, J. D., & Jones, S. (2000). Talking facilitates cognitive-emotional processes of adaptation to an acute stressor. *Journal of Personality and Social Psychology, 78*, 499-508.
- Lewis, W. A., & Bucher, A. M. (1992). Anger, catharsis, the reformulated frustration-aggression hypothesis, and health consequences. *Psychotherapy, 29*, 358-392.
- Loftus, E. F. (1993). The reality of repressed memories. *American Psychologist, 48*, 518-537.
- Loftus, E. F. (2001). Imagining the past. *Psychologist, 14*, 584-587.

- Lutgendorf, S. K., Antoni, M. H., Kumar, M., & Schneiderman, N. (1994). Changes in cognitive coping strategies predict EBV-antibody titre change following a stressor disclosure induction. *Journal of Psychosomatic Research*, 38, 63-78.
- Lutgendorf, S. K., Vitaliano, P. P., Tripp-Reimer, T., Harvey, J. H., & Lubaroff, D. M. (1999). Sense of coherence moderates the relationship between life stress and natural killer cell activity in healthy adults. *Psychology and Aging*, 14, 552-563
- Maclure, M., & Willett, W. C. (1987). Misinterpretation and misuse of the kappa statistic. *American Journal of Epidemiology*, 126, 161-169.
- Mahler, M. S., Pine, F., & Bergman, A. (1975). *The psychological birth of the human infant*. New York: Basic Books.
- Mahoney, M. J. (1991). *Human change processes: The scientific foundations of psychotherapy*. New York: Basic Books.
- Main, M., & Goldwyn, R. (1992). *Interview-based adult attachment classifications: Related to infant-mother and infant-father attachment*. Unpublished manuscript, University of California, Berkeley.
- Main, M., & Goldwyn, R. (1993). *Adult attachment classification system*. Unpublished manuscript, University of California, Berkeley.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points in attachment theory and research. Monographs of the Society for Research in Child Development*, 50, 66-104.
- Mandler, J. M. (1984). *Stories, scripts, and scenes: Aspects of schema theory*. Hillsdale, NJ: Erlbaum Associates.

- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, 35, 63-78.
- Markus, H., & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology*, 38, 299-337.
- Markus, H., & Zajonc, R. B. (1985). The cognitive perspective in social psychology. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed., Vol. 1, pp. 137-230). New York: Random House.
- Marshall, R. D., & Garakani, A. (2002). Psychobiology of the acute stress response and its relationship to the psychobiology of post-traumatic stress disorder. *Psychiatric Clinical of North America*, 25, 385-395.
- Mazzoni, G. A. L., Loftus, E. F., & Kirsch, I. (2001). Changing beliefs about implausible autobiographical events: A little plausibility goes a long way. *Journal of Experimental Psychology–Applied*, 7, 51-59.
- McCabe, A., & Peterson, C. (1991a). Getting the story: A longitudinal study of parental styles in eliciting narratives and developing narrative skill. In A. McCabe & C. Peterson (Eds.), *Developing narrative structure* (pp. 217-253). Hillsdale, NJ: Erlbaum.
- McCabe, A., & Peterson, C. (1991b). The voice of experience: The recall of early childhood and adolescent memories by young adults. In A. McCabe & C. Peterson (Eds.), *Developing narrative structure* (pp. 137-173). Hillsdale, NJ: Erlbaum.
- McClelland, D. C. (1979). Inhibited power motivation and high blood pressure in men. *Journal of Abnormal Psychology*, 88, 182-190.

- McCullough, M. E., & Hoty, W. T. (2002). Transgression-related motivational dispositions: Personality substrates of forgiveness and their links to the big five. *Personality and Social Psychology Bulletin*, 28, 1556-1573.
- McCullough, M. E., & Pargament, K. I., & Thoresen, C. E. (2000). *Forgiveness: Theory, research, and practice*. New York: Guilford Press.
- McCullough, M. E., Rachal, K. C., Sandage, S. J., Worthington, E. L. Jr., Brown, S. W., & Hight, T. L. (1998). Interpersonal forgiving in close relationships: II. Theoretical elaboration and measurement. *Journal of Personality and Social Psychology*, 75, 1586-1603.
- McFarlane A. (1992). Avoidance and intrusion in posttraumatic stress disorder. *Journal of Nervous and Mental Disease*, 180, 439-445.
- McNemar, Q. (1947). Note on the sampling error of the difference between correlated proportions or percentages. *Psychometrika*, 12, 153-157.
- McSherry, W. C., & Holm, J. E. (1994). Sense of coherence: Its effects on psychological and physiological processes prior to, during, and after a stressful situation. *Journal of Clinical Psychology*, 50, 476-487.
- Menig-Peterson, C. L., & McCabe, A. (1978). Children's orientation of a listener to the context of their narratives. *Developmental Psychology*, 14, 582-592.
- Miell, D. (1987). Remembering relationship development: Constructing a context for interactions. In R. Burnett, P. McGhee, & D. D. Clarke (Eds.), *Psychology: A study of a science* (Vol. 5, pp. 639-737). New York: McGraw-Hill.

- Miller, P. J., & Sperry, L. L. (1988). Early talk about the past: The origins of conversational stories of personal experience. *Journal of Child Language*, 15, 293-315.
- Mink, L. O. (1978). Narrative form as a cognitive instrument. In R. H. Canary & H. Kozicki (Eds.), *The writing of history: Literary form and historical understanding* (pp. 129-150). Madison: University of Wisconsin Press.
- Mishara, A. L. (1995). Narrative and psychotherapy-The phenomenology of healing. *American Journal of Psychotherapy*, 49, 180-195.
- Mishler, E. (1995). Models of narrative analysis: A typology. *Journal of Narrative and Life History*, 5, 87-123.
- Mitchell, S. A. (1988). *Relational concepts in psychoanalysis*. Cambridge, MA: Harvard University Press.
- Motzer, S. U., & Stewart, B. J. (1996). Sense of coherence as a predictor of quality of life in persons with coronary heart disease surviving cardiac arrest. *Research in Nursing and Health*, 19, 287-298.
- Mullen, P. M., Smith, R. M., & Hill, E. W. (1993). Sense of coherence as a mediator of stress for cancer patients and spouses. *Journal of Psychosocial Oncology*, 11, 23-46.
- Mumford, E., Schlesinger, H. J., Glass, G. V., Patrick, C., & Cuerdon, T. (1998). A new look at evidence about reduced cost of medical utilization following mental health treatment. *Journal of Psychotherapy Practice and Research*, 7, 68-86.

- Muraoka, M. Y., Carlson, J. G., & Chemtob, C. M. (1998). Twenty-four hour ambulatory blood pressure and heart rate monitoring in combat-related posttraumatic stress disorder. *Journal of Traumatic Stress, 11*, 473-484.
- Murray, E. J. (1985). Coping and anger. In T. M. Field, P. M. McCabe, & N. Schneiderman (Eds.), *Stress and coping* (pp. 243-261). Hillsdale, NJ: Erlbaum.
- Murray, E. J., Lamnin, A. D., & Carver, C. S. (1989). Emotional expression in written essays and psychotherapy. *Journal of Social and Clinical Psychology, 8*, 414-429.
- Murray, E., & Segal, D. (1994). Emotional processing in vocal and written expression of feelings about traumatic experiences. *Journal of Traumatic Stress, 7*, 391-405.
- Myers, L. B., & Brewin, C. R. (1995). Repressive coping and the recall of emotional material. *Cognition and Emotion, 9*, 637-642.
- Myers, L. B., Brewin, C. R., & Power, M. J. (1998). Repressive coping and the directed forgetting of emotional material. *Journal of Abnormal Psychology, 107*, 141-148.
- Neimeyer, R. A., & Levitt, H. (2001). Coping and coherence: A narrative perspective on resilience. In C. R. Snyder (Ed.), *Coping with stress: Effective people and processes* (pp. 47-67). London: Oxford University Press.
- Nelson, K. (1981). Individual differences in language development: Implications for development and language. *Developmental Psychology, 17*, 170-187.
- Nelson, K. (Ed.). (1986). *Event knowledge: Structure and function in development*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Nelson, K., & Gruendel, J. M. (1979). At morning it's lunchtime: A scriptal view of children's dialogues. *Discourse Processes, 2*, 73-94.

- Newman, L. S., & Hedberg, D. A. (1999). Repressive coping and the inaccessibility of negative autobiographical memories: Converging evidence. *Personality and Individual Differences*, 27, 45-53.
- Nichols, K., Gergely, G., & Fonagy, P. (2001). Experimental protocols for investigating relationships among mother-infant interaction, affect regulation, physiological markers of stress responsiveness, and attachment. *Bulletin of the Menninger Clinic*, 65, 371-379.
- Niederhoffer, K. G., & Pennebaker, J. W. (2002). Sharing one's story: On the benefits of writing or talking about emotional experience. In C. R. Snyder and S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 573-583). New York: Oxford University.
- Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin*, 124, 54-74.
- Pargament, K. I. (1997). *The psychology of religion and coping*. New York: Guilford Press.
- Pennebaker, J. W. (1985). Traumatic experience and psychosomatic disease: Exploring the roles of behavior inhibition, obsession, and confiding. *Canadian Psychology*, 26, 82-95.
- Pennebaker, J. W. (1989). Confession, inhibition, and disease. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 22, pp. 211-244). Orlando, FL: Academic Press.

- Pennebaker, J. W. (1993). Putting stress into words: Health, linguistic, and therapeutic implications. *Behavior Research and Therapy*, 31, 539-548.
- Pennebaker, J. W., Barger, S. D., & Tiebout, J. (1989). Disclosure of traumas and health among holocaust survivors. *Psychosomatic Medicine*, 50, 577-589.
- Pennebaker, J. W., & Beall, S. K. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology*, 95, 274-281.
- Pennebaker, J. W., Colder, M., & Sharp, L. K. (1990). Accelerating the coping process. *Journal of Personality and Social Psychology*, 58, 528-537.
- Pennebaker, J. W., & Francis, M. (1996). Cognitive, emotional, and language processes in disclosure. *Cognition and Emotion*, 10, 601-626.
- Pennebaker, J. W., & Hoover, C. W. (1986). Inhibition and cognition: Toward and understanding of trauma and disease. In R. J. Davidson, G. E. Schwartz, & D. Shapiro (Eds.), *Consciousness and self-regulation* (Vol. 4, pp. 107-136). New York: Plenum Press.
- Pennebaker, J. W., Hughes, C., & O'Heeron, R. C. (1987). The psychophysiology of confession: Linking inhibitory and psychosomatic processes. *Journal of Personality and Social Psychology*, 52, 781-793.
- Pennebaker, J. W., Kiecolt-Glaser, J. K., & Glaser, R. (1988). Disclosure of traumas and immune function: Health implications for psychotherapy. *Journal of Consulting and Clinical Psychology*, 56, 239-245.

- Pennebaker, J. W., Mayne, T. J., & Francis, M. E. (1997). Linguistic predictors of adaptive bereavement. *Journal of Personality and Social Psychology*, 72, 863-871.
- Pennebaker, J. W., & O'Heeron, R. C. (1984). Confiding in others and illness rate among spouses of suicide and accidental-death victims. *Journal of Abnormal Psychology*, 93, 473-476.
- Pennebaker, J. W., & Seagal, J. D. (1999). Forming a story: The health benefits of narrative. *Journal of Clinical Psychology*, 55, 1243-1254.
- Pennebaker, J. W., & Sussman, J. R. (1988). Disclosure of traumas and psychosomatic processes. *Social Science and Medicine*, 26, 327-332.
- Peterson, C. (1990). The who, when and where of early narratives. *Journal of Child Language*, 17, 433-455.
- Peterson, C., & Biggs, M. (1998). Stitches and casts: Emotionality and narrative coherence. *Narrative Inquiry*, 8, 51-76.
- Peterson, C., & McCabe, A. (1983). *Developmental psycholinguistics: Three ways of looking at a child's narrative*. New York: Plenum.
- Peterson, C., & McCabe, A. (1994). A social interactionist account of developing decontextualized narrative skill. *Developmental Psychology*, 30, 937-948.
- Petrie, K. J., Booth, R. J., Pennebaker, J. W., Davison, K. P., & Thomas, M. (1995). Disclosure of trauma and immune response to Hepatitis B vaccination program. *Journal of Consulting and Clinical Psychology*, 63, 787-792.

- Piferi, R. L., Kline, K. A., Younger, J., & Lawler, K. A. (2000). An alternative approach for achieving cardiovascular baseline: Viewing an aquatic video. *International Journal of Psychophysiology*, 37, 207-217.
- Planalp, S. (1987). Interplay between relational knowledge and events. In R. Burnett, P. McGhee, & D. D. Clarke (Eds.), *Accounting for relationships* (pp. 175-191). New York: Methuen.
- Polkinghorne, D. E. (1988). *Narrative knowing and the human sciences*. Albany: State University of New York Press.
- Porath, M. (1996). Narrative performance in verbally gifted children. *Journal for the Education of the Gifted*, 19, 276-292.
- Price, D., & Goodman, G. (1990). Visiting the wizard: Children's memory for recurring event. *Child Development*, 61, 664-680.
- Quasthoff, U. M. (1997). An interactive approach to narrative development. In M. G. W. Bamberg (Ed.), *Narrative development: Six approaches* (pp. 51-84). Mahwah, NJ: Lawrence Erlbaum Associates.
- Raphael, K. G., & Dohrenwend, B. P. (1987). Self-disclosure and mental health: A problem of confounded measurement. *Journal of Abnormal Psychology*, 96, 214-217.
- Ratner, H. H., Smith, B. S., & Padgett, R. J. (1990). Children's organization of events and even memories. In R. Fivush & J. Hudson (Eds.), *Knowing and remembering in young children* (pp. 65-93). New York: Cambridge University Press.

- Rauch, S., van der Kolk, B., Fisler, R., Alpert, N., Orr, S., Savage, C., et al. (1996). A symptom provocation study of posttraumatic stress disorder using positron emission tomography and script driven imagery. *Archives of General Psychiatry*, 53, 380-387.
- Reese, E. & Fivush, R. (1993). Parental styles of talking about the past. *Developmental Psychology*, 29, 596-606.
- 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.
- Richards, J. M., Beal, W. E., Seagal, J. D., & Pennebaker, J. W. (2000). The effects of disclosure of traumatic events on illness behavior among psychiatric prison inmates. *Journal of Abnormal Psychology*, 109, 156-160.
- Ricoeur, P. (1981). Narrative time. In W. J. T. Mitchell (Ed.), *On narrative* (pp. 165-186). University of Chicago Press.
- Ricoeur, P. (1984). *Time and narrative, Vol. 1*. University of Chicago Press.
- Ricoeur, P. (1991). Life in quest of narrative. In D. Wood (Ed.), *On Paul Ricoeur: Narrative and interpretation* (pp. 20-33). London: Routledge.
- Rimé, B. (1995). Mental rumination, social sharing, and the recovery from emotional exposure. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp. 271-291). Washington, DC: American Psychological Association.
- Rogers, D. T. (2000). *The validity of eliciting and coding personal narratives: Understanding the properties of coherence and richness*. Unpublished master's thesis, University of Tennessee, Knoxville.

- Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social contexts*. London: Oxford University Press.
- Russell, R. L., & Lucariello, J. (1992). Narrative yes: Narrative ad infinitum, no! *American Psychologist*, 47, 671-672.
- Safran, J. D. (1990). Towards a refinement of cognitive therapy in light of interpersonal theory: I. Theory. *Clinical Psychology Review*, 10, 87-105.
- Sagar, H. A., & Schofield, J. W. (1980). Racial and behavioral cues in Black and White children's perceptions of ambiguously aggressive acts. *Journal of Personality and Social Psychology*, 39, 590-598.
- Sagy, S., & Antonovsky, A. (1992). The family sense of coherence and the retirement transition. *Journal of Marriage and the Family*, 54, 983-993.
- Sandler, J. (1994). Fantasy, defense, and the representational world. *Infant Mental Health Journal*, 15, 26-35.
- Sandler, J., & Rosenblatt, B. (1962). The concept of the representational world. *The Psychoanalytic Study of the Child*, 27, 128-145.
- Sanocki, T. (1997). Structural contingencies and object-based shifts of attention during object recognition. *Journal of Experimental Psychology: Human Perception & Performance*, 23, 780-807.
- Sarbin, T. (1986). The narrative as root metaphor for psychology. In T. Sarbin (Ed.), *Narrative psychology: The storied nature of human conduct* (pp. 3-21). New York: Cambridge University Press.
- Schafer, R. (1980a). Narration in the psychoanalytic dialogue. *Critical Inquiry*, 7, 29-53.

- Schafer, R. (1980b). Action and narration in psychoanalysis. *New Literary History*, 12, 61-85.
- Schafer, R. (1983). *The analytic attitude*. New York: Basic Books.
- Schafer, R. (1989). Narratives of the self. In A. M. Cooper, O. F. Kernberg, & E. S. Person (Eds.), *Psychoanalysis: Towards the second century* (pp. 153-167). New Haven, CT: Yale University Press.
- Schafer, R. (1992). *Retelling a life: Narration and dialogue in psychoanalysis*. New York: Basic Books.
- Scheff, T. J. (1979). *Catharsis in healing, ritual, and drama*. Berkeley: University of California Press.
- Schneider, D. J. (1973). Implicit personality theory: A review. *Psychological Bulletin*, 79, 294-309.
- Schoutrop, M. J. A., Lange, A., Brosschot, J., & Everaerd, W. (1997). Overcoming traumatic events by means of writing assignments. In A. Vingerhoets, F. van Bussel, & J. Boelhouwer (Eds.), *The (non)expression of emotions in health and disease* (pp. 279-289). Netherlands: Tilburg University Press.
- Shaw, C. L. M. (1997). Personal narrative: Revealing self and reflecting other. *Human Communication Research*, 24, 302-319.
- Sherwood, M. (1969). *The logic of explanation in psychoanalysis*. New York: Academic Press.
- Singer, J. L. (1985). Transference and the human condition: A cognitive-affective perspective. *Psychoanalytic Psychology*, 2, 189-219.

- Smyth, J. M. (1998). Written emotional expression: Effect sizes, outcome types, and moderating variables. *Journal of Consulting and Clinical Psychology*, 66, 174-184.
- Smyth, J. M., & Pennebaker, J. W. (1999). Sharing one's story: Translating emotional experiences into words as a coping tool. In C. R. Snyder (Ed.), *Coping: The psychology of what works* (pp. 70-89). New York: Oxford University Press.
- Snow, C. E. (1990). Building memories: The ontogeny of autobiography. In D. Cicchetti & M. Beeghly (Eds.), *The self in transition: Infancy to childhood* (pp. 1-24). University of Chicago Press.
- Somes, G. (1983). McNemar test. In S. Kotz & N. Johnson (Eds.), *Encyclopedia of statistical sciences*, Vol. 5 (pp. 361-363). New York: Wiley.
- Spence, D. P. (1982). *Narrative truth and historical truth: Meaning and interpretation in psychoanalysis*. New York: Norton.
- Spence, D. P. (1986). When interpretation masquerades as explanation. *Journal of the American Psychoanalytic Association*, 34, 3-22.
- Spence, D. P. (1987). *The Freudian metaphor: Toward paradigm change in psychoanalysis*. New York: Norton.
- Spera, S. P., Buhrfeind, E. D., & Pennebaker, J. W. (1994). Expressive writing and coping with job loss. *Academy of Management Journal*, 37, 722-733.
- Spiegel, D. (1992). Effects of psychosocial support on patients with metastatic breast cancer. *Journal of Psychosocial Oncology*, 10, 113-120.

- Spiegel, D., & Kimerling, R. (2001). Group psychotherapy for women with breast cancer: Relationships among social support, emotional expression, and survival. In C. D. Ryff & B. H. Singer (Eds.), *Emotion, social relationships, and health: Series in affective science* (pp. 97-123). London: Oxford University Press.
- Spitzer, R. L., & Fleiss, J. L. (1974). A re-analysis of the reliability of psychiatric diagnosis. *British Journal on Psychiatry*, 125, 341-47.
- Stahl, S. K. D. (1983). Personal experience stories. In R. M. Dorson (Ed.), *Handbook of American folklore* (pp. 268-275). Bloomington: Indiana University Press.
- Steiner, A., Raube, K., Stuck, A. E., & Aronow, H. U. (1996). Measuring psychosocial aspects of well-being in older community residents: Performance of four short scales. *Gerontologist*, 36, 54-62.
- Stern, D. N. (1985). *The interpersonal world of the infant: A view from psychoanalysis and developmental psychology*. New York: Basic Books.
- Stern, D. N. (1994). One way to build a clinically relevant baby. *Infant Mental Health Journal*, 15, 9-25.
- Stern, W. (1910). Abstracts of lectures on the psychology of testimony and on the study of individuality. *American Journal of Psychology*, 21, 270-282.
- Stiles, W. B., Honos-Webb, L., & Lani, J. A. (1999). Some functions of narrative in the assimilation of problematic experiences. *Journal of Clinical Psychology*, 55, 1213-1226.
- Stroebe, W., & Stroebe, M. (1996). The social psychology of social support. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 597-621). New York: Guilford Press.

- Tavris, C. (1984). On the wisdom of counting to ten: Personal and social dangers of anger expression. *Review of Personality and Social Psychology*, 5, 170-191.
- Taylor, C. (1979). Interpretation and the sciences of man. In P. Rabinow & W. M. Sullivan (Eds.), *Interpretive social science: A reader* (p. 28). Berkeley: University of California Press.
- Taylor, S. E., & Schneider, S. K. (1989). Coping and the simulation of events. *Social Cognition*, 7, 174-194.
- Tessler, M., & Nelson, K. (1994). Making memories: The influence of joint encoding on later recall by young children. *Consciousness and Cognition*, 3, 307-326.
- Thomas, A. K. & Loftus, E. F. (2002). Creating bizarre false memories through imagination. *Memory and Cognition*, 30, 423-431.
- Thompson, W. D., & Walter, S. D. (1988). A reappraisal of the kappa coefficient. *Journal of Clinical Epidemiology*, 41, 949-958.
- Thoresen, C. E., Harris, A. H. S., & Luskin, F. (2000). Forgiveness and health: An unanswered question. In M. E. McCullough & K. I. Pargament (Eds.), *Forgiveness: Theory, research, and practice* (pp. 254-280). New York: Guilford Press.
- Traue, H. C., & Deighton, R. (1999). Inhibition, disclosure, and health: Don't simply slash the gordian knot. *Advances in Mind Body Medicine*, 15, 184-193.
- Trzebinski, J. (1985). Action-oriented representations of implicit personality theories. *Journal of Personality and Social Psychology*, 48, 1266-1278.
- Uebersax, J. S. (1987). Diversity of decision-making models and the measurement of interrater agreement. *Psychological Bulletin*, 101, 140-146.

- Uebersax, J. S. (2001). *Statistical methods for rater agreement*. Retrieved August 6, 2002, from <http://ourworld.compuserve.com/homepages/jsuebersax/agree.htm>
- Umiker-Seboek, D. J. (1979). Preschool children's intraconversational narratives. *Journal of Child Language*, 6, 91-109.
- van der Kolk, B. (1994). The body keeps the score: Memory and the evolving psychobiology of posttraumatic stress. *Harvard Review of Psychiatry*, 1, 253-265.
- van der Kolk, B., & Fisler, R. (1995). Dissociation and the fragmentary nature of traumatic memories: Review and experimental confirmation. *Journal of Traumatic Stress*, 8, 505-525.
- van der Kolk, B., & van der Hart, O. (1991). The intrusive past: The flexibility of memory and the engraving of trauma. *American Imago*, 48, 425-454.
- van IJzendoorn, M. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, 117, 387-403.
- von Wright, G. H. (1971). *Explanation and understanding*. Ithica, NY: Cornell University Press.
- Vygotsky, L. (1978). *Mind in society*. Cambridge: Harvard University Press.
- Wahler, R. G., & Castlebury, F. D. (1997). Personal narratives as maps of the social ecosystem. *Clinical Psychology Review*, 22, 297-314.
- White, H. (1981). The value of narrativity in the representation of reality. In W. J. T. Mitchell (Ed.), *On narrative* (pp. 1-23). University of Chicago Press.
- White, H. (1987). *The content of the form: Narrative discourse and historical representation*. Baltimore, MD: Johns Hopkins University Press.

Winnicott, D. W. (1965). *The maturational processes and the facilitating environment*.

New York: International University Press.

Witvliet, C. V., Ludwig, T. E., & Vander-Laan, K. L. (2001). Granting forgiveness or harboring grudges: Implications for emotion, physiology, and health.

Psychological Science, 121, 117-123.

APPENDIX

Appendix A

Personal Narrative Coding System

Coherence:

1. Upon reading the narrative do you as the listener clearly get the point (or points) being made by the narrator?
2. Are all the ideas or happenings presented by the narrator relevant to the question being asked?
3. Does the narrator's response follow a clear progression (beginning, middle, and end)?
4. Is the narrator's response free of tangential remarks?
5. Do the parts of the narrator's response fit together to form a sensible whole?

Richness:

1. Is at least one idea or happening introduced by the narrator elaborated beyond its initial introduction?
2. Is at least one specific or concrete event described?
3. Is the narrator's response free from vague or ambiguous thought?
4. Does the narrator support a presented idea or happening with evaluative remarks?
5. Does the narrator provide information with regard to others?

Table A-1. Results of Narrative Interrater Reliability Analysis.

Item	κ	Po			Ps+			Ps–			OR ^a			McNemar <i>p</i>	
		<i>M</i>	min	max	<i>M</i>	min	max	<i>M</i>	min	max	<i>M</i>	min	max	min	max
Coherence															
1	.42**	87.78	80.00	100.00	61.11	33.33	100.00	92.75	88.24	100.00	5.00	5.00	5.00	.50	1.00
2	.40**	81.67	75.00	90.00	57.78	40.00	66.67	88.01	84.21	94.12	12.00	12.00	12.00	.25	1.00
3	.31*	73.33	65.00	80.00	60.83	40.00	80.00	78.98	72.73	84.21	8.33	4.00	16.00	.18	1.00
4	.48***	73.33	65.00	100.00	67.31	50.00	82.35	67.82	57.14	87.50	6.83	6.67	7.00	.13	1.00
5	.66***	93.33	80.00	100.00	80.00	60.00	100.00	95.56	86.67	100.00	13.00	13.00	13.00	.63	1.00
Richness															
1	.55***	91.67	85.00	100.00	61.90	57.14	66.67	95.01	90.90	100.00	15.00	15.00	15.00	1.00	1.00
2	.69***	87.78	80.00	100.00	69.44	33.33	100.00	91.91	87.50	100.00	13.00	5.00	21.00	.63	1.00
3	.45***	70.56	66.67	75.00	68.69	66.67	72.73	71.11	66.67	80.00	8.92	5.33	12.50	.25	.63
4	.26	67.78	58.33	80.00	77.39	70.59	87.50	41.58	28.57	50.00	4.33	1.00	7.00	.38	1.00
5	.60***	72.78	58.33	90.00	77.23	66.67	92.31	65.61	44.44	85.71	26.83	2.50	72.00	.38	1.00

Note. κ = kappa; Po = proportion of overall agreement; Ps+ = proportion of specific agreement for “yes” ratings; Ps– = proportion of specific agreement for “no” ratings; OR = odds ratio.

^aOR was not calculated for some rater pairs due to empty cells in their contingency tables.

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

Table A-2. Means and Standard Deviations for Continuous Variables.

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
Coherence	97	3.63	1.01
Richness	97	2.61	0.67
Age	97	20.47	3.00
Years Since Event	90	4.79	5.08
Physical Symptoms	94	51.26	10.90
Stress	94	105.29	20.91
Forgiveness	95	41.81	9.27
Empathy	96	28.65	7.30
HR at Rest	93	75.01	12.83
HR at Narrative	97	80.89	12.00
HR at Recovery	91	76.47	11.62
MAP at Rest	96	79.83	7.48
MAP at Narrative	96	92.62	9.56
MAP at Recovery	97	83.96	7.88
HR Reactivity	91	9.84	9.27
HR Recovery	91	-4.08	7.52
MAP Reactivity	96	13.09	8.11
MAP Recovery	96	-8.08	7.42

Note. HR = heart rate; MAP = mean arterial pressure.

Table A-3. Correlations Among Narrative Scales, Participant Variables, and Indices of Functioning.

Variable	Coh	Rich	Age	Sex ^a	Race ^a	Time	PS	Stress
Coh		.18	-.07	-.01	-.08	-.04	-.34***	-.09
Rich			.09	.06	-.14	-.02	.05	-.27**
Age				-.18	.09	.58***	.17	-.06
Sex ^a					-.05	-.09	.18	.12
Race ^a						.17	.03	-.16
Time							.13	-.01
PS								.32***
Stress								

Note. Coh = coherence; Rich = richness; Time = years since event; PS = physical symptoms.

^aSpearman rank correlations.

** $p < .01$. *** $p < .001$

Table A-4. Mean Coherence and Richness among Categorical Health Variables.

	Medication		FHHBP	
	Yes	No	Yes	No
Coherence	3.22	3.80	3.33	3.80
Richness	2.55	2.62	2.60	2.61

Note. FHHBP = family history of high blood pressure.

Table A-5. Summary of Regression Analyses for Variables Predicting Forgiveness and Empathy.

Criterion	Predictor	β	R^2	F
Forgiveness	Coherence	-.31	.09	9.60**
Empathy	Coherence	-.29	.08	8.49**

** $p < .01$.

Table A-6. Summary of Regression Analyses for Variables Predicting Physiological Reactivity and Recovery Scores.

Criterion	Predictor	β	R^2	F
HR Reactivity	Coherence	.30	.09	8.62**
HR Recovery	Coherence	.22	.05	4.70*
MAP Reactivity	Richness	.22	.05	4.76*
MAP Recovery				<i>ns</i>

* $p < .05$. ** $p < .01$

VITA

Daniel Thomas Rogers was born in Spartanburg, South Carolina, on November 13, 1975. He attended schools in Woodruff, South Carolina, graduating from Woodruff High School in May of 1994. He then attended The Johns Hopkins University in Baltimore, Maryland, where in May of 1998 he earned the Bachelor of Arts degree in Psychology, with Honors, with a minor in Anthropology. From there, Daniel entered the Clinical Psychology Doctoral Program at the University of Tennessee in Knoxville, earning his Master of Arts degree in Psychology in August of 2000. He is currently completing his predoctoral internship in clinical psychology at the Baylor College of Medicine in Houston, Texas. Upon completion of the Doctorate degree in Psychology, Daniel will begin a postdoctoral fellowship in clinical psychology at the University of Michigan Psychological Clinic in Ann Arbor.