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UMI
Linguistic Cohesion in Psychotherapy Process and Outcome

by

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June 2007

Submitted to the New School for Social Research of the New School in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy.

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Abstract

Therapeutic alliance researchers have increasingly relied on attachment theory’s concept of coherence to gain insight into the mechanism of psychotherapeutic change. This paper presents a study designed to capitalize on the linguistic concept of coherence and the related concept of cohesion to augment the attachment theory perspective. The study used an algorithmic-based program to analyze the textual features of transcribed interviews with patients who were discussing their relationship with their therapist. The central premise that a high incidence of causal verbs and particles is a fundamental element of good psychotherapy outcome was well-supported. As hypothesized, a high incidence of causal verbs and particles clustered with abstract language to consistently correlate with good psychotherapy outcome. The suggestion that this cluster may represent the linguistic version of reflective functioning appears promising as an avenue for future research. This linguistic perspective on coherence provided explanatory evidence as to why this sample's initial patient Working Alliance Inventory (WAI) rating generated an unexpected significant negative correlation to good outcome. The effort to provide concurrent validity for the Therapeutic Attachment Scale (TAS) produced mixed results. Limitations such as small sample size (N = 20) and the resultant inability to run a factor analysis were discussed.
### Table of Contents

Chapter I: Introduction  p. 1  
Chapter II: Literature Review  p. 5  
Chapter III: Methods  p. 59  
Chapter IV: Results  p. 69  
Chapter V: Discussion  p. 81  
List of References  p. 92  

List of Appendices

- Appendix A:  p. 106  
  Therapeutic Attachment Scale (TAS)
- Appendix B:  p. 108  
  Subscales for Therapeutic Attachment Scale
- Appendix C:  p. 110  
  Therapeutic Attachment Scale Coding Manual
- Appendix D:  p. 125  
  Patient-Therapist Relationship Interview (P TRI)
- Appendix E:  p. 131  
  Complete List of Coh-Metrix Causal Connectives
- Appendix F:  p. 134  
  Patient Post-Session Questionnaire (PSQ)  
  In Section C: Patient Working Alliance Inventory (WAI)
- Appendix G:  p. 137  
  Therapist Post-Session Questionnaire (PSQ)  
  In Section C: Therapist Working Alliance Inventory (WAI)
Appendix H: Symptom Checklist-90R (SCL-90R)  
Appendix I: Global Assessment Scale (GAS)  
Appendix J: Patient Inventory of Interpersonal Problems-64 (IIP-64)  
Appendix K: Therapist Inventory of Interpersonal Problems-32 (IIP-32)  
Appendix L: Target Complaints (TC)  

List of Tables  
Table 1: TAS-Generated Attachment Categories  
Table 2: Process Measure - Initial Patient WAI  
Table 3: Attachment Categories, Initial Patient WAI, & Therapist Outcome Measures  
Table 4: Coh-Metrix Indices and Therapist Outcome Measures  
Table 5: Attachment Categories, Initial Patient WAI, and Patient Outcome Measures  
Table 6: Coh-Metrix Indices and Patient Outcome Measures
Chapter I

Introduction

Researchers from a variety of sub-fields within psychology have increasingly identified narrative coherence as a robust indicator of mental health (Baerger & McAdams, 1999; Fonagy et al., 1996; Rude et al., 2004). However, the significant differences in how these sub-fields define narrative coherence complicate efforts to deconstruct its causal mechanisms (Phillips-Stoll & Schober, 2005). Attachment theorists measure coherence by attending to broad thematic and theoretical parameters within narratives. Conversely, psycholinguists measure coherence by analyzing how textual components of the narrative interact to create cohesive, meaningful wholes. This difference in perspective essentially amounts to defining coherence from either a macro-level or a micro-level (Phillips-Stoll & Schober, 2005).

The current study extends a previous pilot study (Francis, 2005) in its partial focus on using a psycholinguistic tool to provide concurrent validity for a measure drawn from the attachment theory tradition. The current study represents a further effort to demonstrate that a fine-grained analysis of narrative coherence from a psycholinguistic perspective can significantly enhance the understanding of this construct as it is understood by those with a macro-level conception of the construct. Ultimately, the goal is not to arrive at a single definition of narrative coherence. Rather, it is to appreciate that multiple levels of meaning exist and that the endeavor to identify the commonalities between these levels is an important step in the scientific process.

Specifically, one of the current study’s goals is to extend the pilot study’s (Francis, 2005) efforts to provide concurrent validity for a recently developed measure of
the patient-therapist relationship entitled the Therapeutic Attachment Scale (TAS) (Bowman, 2005). While the pilot study (Francis, 2005) provided encouraging evidence to support the validity of the TAS, the current study’s expanded sample size and methodological adjustments are designed to further solidify those findings. The TAS is an observer-rated measure grounded in adult attachment theory (Fonagy et al., 1998; Hesse, 1999; Holmes, 1993, 2001; Main, 1991; Slade, 1999) and designed to capture patients’ narrative style when discussing their relationship with their therapist via coding of videotapes of the Patient-Therapist Relationship Interview (PTRI) (Diamond et al., 2000).

Coh-Metrix 1.4, an algorithmic-based program designed to analyze textual features, is used to assess the cohesion of patient responses to the PTRI (Francis, 2005). Coh-Metrix uses the psycholinguistic definition of coherence alluded to at the outset and provides a rich depiction of the factors that contribute to coherence from that tradition.

While drawing from attachment theory, the creation of the TAS emanates from recent efforts among psychotherapy researchers and theorists in relational psychoanalysis to use narrative coherence to elucidate the intricacies of the therapeutic alliance (Bowlby, 1988; Diamond et al., 1999; Holmes, 2001). John Bowlby’s (1988) contention that the psychotherapy relationship activates many elements of an adult’s ingrained expectations and behaviors provided much of the impetus for this increased interest. Mary Main’s theoretical and methodological contributions (1991, 1993; Main & Goldwyn, 1984; Main et al., 1985) were largely responsible for providing a scientific foundation for the extension of Bowlby’s theory to the domain of adult attachment. Attachment theorists’
conception of narrative coherence is particularly appealing because it allows psychotherapy researchers to operationalize aspects of the therapeutic alliance.

This opportunity for increased understanding of the therapeutic alliance holds great appeal because of the ongoing emphasis on the quality of the therapeutic alliance as the strongest predictor of good psychotherapeutic outcome (Horvath & Symonds, 1991; Martin, Garske, & Davis, 2000). However, the concept of the therapeutic alliance is somewhat broad and is therefore difficult to deconstruct. The causal mechanisms of the relationship between a strong therapeutic alliance and positive psychotherapeutic outcome remain somewhat of a mystery despite extensive attention from psychotherapy researchers. While the TAS is predicated on the belief that attachment theory’s conception of narrative coherence can shed light on these causal mechanisms, the current study’s use of Coh-Metrix is based on the belief that a more detailed understanding of the concept of narrative coherence itself is a crucial step en route to this end.

This leads to the current study’s second major goal. That is, this study aims to establish that cohesion analysis results can be compared directly to psychotherapy process and outcome measures in order to significantly advance the understanding of the causal mechanism between the therapeutic alliance and outcome. It is hoped that the micro-level focus of cohesion analysis will provide a rich alternative perspective to previous efforts to deconstruct the casual mechanisms of the alliance. While this effort involves employing cohesion analysis in a context that has not previously been attempted, it is argued that the lessons learned from such an effort will provide an impetus for more focused future research. Cohesion’s link to the psycholinguistic concept of coherence provides a firm theoretical foundation for this effort.
As the field of psychotherapy research faces mounting pressure to provide empirical support, methodology takes on increasing importance. While observer-rated measures utilizing coding groups are a necessary, time-honored tradition in psychotherapy research, the use of innovative methodology derived from another theoretical orientation provides a unique opportunity to augment this approach. Given the encouraging findings revealed in the pilot study (Francis, 2005), the fine-grained analysis of the psycholinguistic concept of cohesion via Coh-Metrix allows us to better understand attachment theory’s conception of coherence as represented by the TAS. Furthermore, the direct analysis of the relationship between cohesion and the therapeutic alliance and outcome may provide a valuable step toward placing linguistic coherence on equal footing with attachment theory’s conception of the construct. In so doing, it may provide explanatory evidence where attachment theory’s concept of coherence leaves questions unanswered. Ultimately, it is hoped that this approach will promote targeted clinical interventions that will enhance psychotherapeutic outcome.
Chapter II

Literature Review

At the outset, I will explore narrative coherence as it relates to attachment theory. I will briefly explore the increased emphasis on adult attachment as an extension of the traditional domain of attachment theory. In so doing, I will discuss the primary measures which have emerged to assess adult attachment. Throughout this discussion, I will remain focused on the role of narrative coherence at various stages throughout the evolution of adult attachment theory. I will end with a brief overview of efforts to operationalize coherence in the context of the therapeutic relationship and the therapeutic alliance. This overview will include a review of the theoretical assumptions that have prompted this movement.

I will then explore the origins of the concept of coherence as conceived by psycholinguists. I will trace the emerging emphasis on specific textual features which contribute to the concept of cohesion and the subsequent emphasis on coherence. I will pay particular attention to those textual features which produced the most salient results in recent research. Specifically, the incidence of causal verbs and particles, concreteness, and connectives will be discussed at length. I will then discuss how an algorithmic-based program utilizing such textual features has shed new light on the psycholinguistic concept of coherence. In closing, I will address some of the limitations of both methods of measuring coherence when considering the intricacies of spoken dialogue.
Attachment Theory

John Bowlby's (1969/1982, 1973, 1980) clinical observations regarding the nature and function of human attachments heralded the introduction of attachment theory. Bowlby's work with delinquent children led to what would become known as the central hypothesis of attachment theory. That is, a child’s “patterns of seeking care and nurture and of expressing affect emerge as a function of the mother’s response to them” (Slade, 1999, p. 578). Bowlby emphasized the relationship of the primary caregiver and the child, typically the mother-child relationship. He theorized that the dynamics of that mother-child dyad determined the structure and functioning of the child’s mind. This model was firmly based on social causation in its contention that the child developed patterns of behavior based on the largely unwritten rules promoted by the mother. The mother’s behavior in the mother-child relationship essentially dictated the thoughts and feelings that were acceptable for the child to express in attachment-relevant situations (Slade, 1999). Though the mother-child relationship was most highly emphasized, Bowlby contended that the child’s patterns of behavior were also influenced by relationships with other important caregivers such as the child’s father.

According to Bowlby, these patterns of attachment behavior were then reinforced by the development of the child’s internal representations of his environment, his attachment figures, himself, and their resultant interactions. Drawing from the writings of Craik (1943), Bowlby (1973) labeled these internal representations ‘internal working models’ (Main, 1991). More contemporary cognitive theorists (Dennet, 1978; Johnson-Laird, 1988) have persuasively argued for the importance of such an internal model as a necessity for the human capacity to plan and take action. In regard to the
attachment behavioral system in particular, the concept of the internal working model is integral because it is the mechanism by which learned behavior is perpetuated (Main, 1991).

From an attachment theory perspective, difficulties arise when inadequate caregiving in the mother-child dyad results in what Bowlby (1973) characterized as 'multiple models' for the child. These multiple models were problematic because they developed in reference to an entity which should have just one mental model (Main, 1991). For example, a child may create implicitly contradictory models based on the belief that his mother is always loving and that she does not look out for his best interests. While these seemingly contradictory beliefs could be adjusted slightly to fit into a unitary model, a child who reacts by developing multiple models will simply cling to both beliefs with no effective integration. This will result in the development and perpetuation of impaired patterns of behavior in attachment-related situations. The problem becomes more entrenched as multiple models of attachment figures subsequently lead to multiple models of the self (Main, 1991).

It is important to realize that Bowlby conceived of the internal working model in part as simply a rough-and-ready outline of the environment and the self which could be mentally manipulated to plan future actions (Main, 1991). While Bowlby spoke of a unitary model, he acknowledged that the internal working model necessarily contains multiple representations based on direct experiences with attachment figures as well as concepts of the self which emerge out of those experiences (Bowlby, 1973; Bretherton, 1985). Therefore, Bowlby's unitary model concept clearly incorporated multiple
representations rather than one unified representation. His unitary model concept simply spoke to the ongoing necessity for appropriately integrating these various representations.

Bowlby also fully understood “the multiplicity, embedding, and hierarchy of mental models which inevitably characterizes normal mental life” (Main, 1991, p. 132). That is, Bowlby acknowledged that the complexities of an adult mind translate into a host of models regarding different parts or aspects of reality with often multifaceted interactions. In using the term multiple models, Bowlby was not referring to this inherent complexity. Instead, he was referencing “multiple and implicitly contradictory models of the same aspect of reality. It refers, in short, to multiple models of a thing which ought to have a singular model” (Main, 1991, p. 132, italics included).

This discussion reveals that Bowlby’s working model claims do not refer to the level of mental models found in contemporary cognitive psychology. It is currently entirely unknown as to how Bowlby’s multiple models would translate into contemporary cognitive psychology terms (M. Schober, 2005, personal communication). The concept of multiple models as employed by Bowlby should simply be regarded as a general depiction of the way attachment behaviors are perpetuated via mental representations.

This concept of multiple models paved the way for future researchers such as Mary Main (George et al., 1985; Main et al., 1985) to operationalize the concept of attachment organization and extend it to the exploration of adult attachment. Main and her colleagues were heartened by the groundbreaking research of Mary Ainsworth, et al. (1978), which provided empirical support for Bowlby’s central hypothesis. Ainsworth’s now-famous “Strange Situation” experiment vividly demonstrated that differences in the quality of maternal caregiving behavior during the first year of life result in measurable
differences in infants’ comfort-seeking behavior in relation to their mothers (Slade, 1999). Main and her colleagues (George et al., 1985; Main et al., 1985) sought to develop a measure to be used with adults which would be analogous to the Strange Situation in its activation of attachment-related behavior. They arrived at a semi-structured interview, the Adult Attachment Interview (AAI), which would ultimately serve as a source for a multitude of research studies on adult attachment.

The AAI is comprised of multiple questions designed to draw out the interviewee's account of his or her childhood attachment and separation experiences in relation to the primary caregiver. The interviewee is also encouraged to assess the impact of those experiences on present functioning. The format is designed to “surprise the unconscious” of the subject so as to activate indicators of their attachment organization (George et al., 1985).

By systematically researching AAI transcripts (Main & Goldwyn, 1984, 1998), Main uncovered patterns of mental representation that were parallel to infants’ patterns of behavior in Ainsworth’s Strange Situation. These patterns did not stem from a focus on the content of an individual’s attachment-relevant childhood experiences, but rather on the way these experiences were remembered and organized. Therefore, the pivotal issue for Main in determining adult attachment style turned out to be the coherence of the interviewee’s utterances regarding childhood attachment and separation issues. “Main suggests that experiences that cannot be known or spoken about are at the root of incoherence in discourse…” (Slade, 1999, p. 582). Main thus demonstrated that incoherent speech when addressing attachment-related experiences was the tangible linguistic result of interviewees’ largely unsuccessful attempts to manage what they could
not integrate or regulate in experience or memory (Slade, 1999). Ultimately, Main’s assessment of interviewees’ coherence led to placement in one of four attachment categories: secure-autonomous, dismissing, preoccupied, or unresolved. The dismissing, preoccupied, and unresolved categories are all considered insecure attachment organizations.

The centrality of coherence in adult attachment theory is indisputable. However, the way coherence is defined by adult attachment theorists is debatable. Main’s pioneering work on adult attachment theory has established her definition of coherence as the benchmark from this theoretical orientation. Main associates coherence with truth and derives her definition from using two divergent philosophical perspectives on truth (Main, 1991). The coherence theory of truth is founded upon consistent internal co-reference (Russell, 1948). The correspondence theory of truth is based on the plausibility of statements in relation to the reality of the external world (Bradley, 1955; Wittgenstein, 1961). Main’s classification system produces two coherence ratings, ‘coherence of transcript’ and ‘coherence of mind’, which directly relate to the coherence theory of truth and correspondence theory of truth.

An interviewee achieves a high ‘coherence of transcript’ rating by demonstrating consistency in terms of internal co-reference. Main views the AAI as discourse and has established rules for identifying ‘coherence of transcript’ in terms of Grice’s (1975) maxims. Grice posited that coherent conversation was based on the Cooperative Principle. The following four maxims rest on this principle: 1) Quality – be truthful and provide supporting evidence for what you say. 2) Quantity – be succinct, and yet complete. 3) Relation – be relevant. 4) Manner – be clear and orderly. Given Main’s
theoretical emphasis on truth in defining coherence, it is not surprising that she places the most importance on the maxim of quality (Main, 1991). In this vein, a primary aspect of coherence for Main is the capacity to integrate generalized statements about attachment figures with episodic memories to support those generalizations. Incoherence of transcript is thus conceived as the linguistic sign of multiple contradictory internal working models (Slade, 1999).

Perhaps one of Main's most intriguing findings in relation to the current project is that parents of infants who have been judged insecure during the Strange Situation appear to feature differing types of incoherence of transcript (Main, 1991). For example, parents determined to be preoccupied via the AAI violate the maxim of quality in unexplained oscillations of viewpoint. They violate the maxim of relevance by frequently offering tangential or irrelevant responses that suggest they occasionally lose track of the interview question. These preoccupied individuals also violate the maxim of manner in the form of highly entangled, confusing, run-on sentences combined with rapid oscillations of viewpoint within or between sentences (Main, 1991). Conversely, dismissing parents violate the maxim of quality by failing to have evidence for what they say. Main found that dismissing individuals “often seem to idealize their parents as shown in the use of extremely favorable relationship descriptors which are unsupported, or actively contradicted, by autobiographical memories” (1991, p. 144). Dismissing individuals often violate the maxim of quantity by providing overly succinct and subsequently incomplete responses (Main, 1991).

A high 'coherence of mind' rating is achieved by a high correspondence between the interviewee’s statements and the state of affairs in the external world (Main
and Goldwyn, 1989). This is considered a measure of the overall plausibility of the subject’s comments. As Main argues, this requires raters to “step outside of the internal boundaries of the interview” (1991, p. 144). ‘Coherence of mind’ was not originally included in the scoring system for the AAI, but Main determined that a scale assessing plausibility was necessary because the ‘coherence of transcript’ guidelines were not appropriate for identifying speakers who seemingly “violated our more usual or general understanding of causality and of physical laws” (1991, p. 144). Incoherence of mind can be considered a cognitive sign of the ill-effects of multiple contradictory models (Slade, 1999) and is subsequently difficult to capture via linguistic assessment.

By using the concept of coherence as defined from the attachment theory perspective, Main’s adult attachment categorizations have produced impressive results in terms of predictive validity. A meta-analysis involving 18 studies produced a significant correspondence between the AAI attachment classification of adults and the Strange Situation behavior of their children (van Ijzendoorn & Bakermans-Kranenburg, 1996). Benoit and Parker (1994) found that a mother’s AAI classification during pregnancy significantly predicted her child’s Strange Situation behavior after birth. Findings such as these “provide an empirical foundation for exploring the role of mental representations and adult attachment in important relationships across the lifespan” (Bowman, 2005, p. 17). This has prompted researchers who investigate intense relationships to postulate that adult attachment theory may apply to their domain of interest if the relationship sufficiently activates ingrained attachment behaviors. This theoretical extension of Main’s work presents the possibility of exploring current attachments rather than childhood attachment experiences per se. Hazan and Shaver’s (1987, 1990) use of adult
attachment theory to explore current romantic attachments suggests that this may yield fruitful results.

**Therapeutic Relationship**

Stemming from Bowlby's (1988) contention that the psychotherapy relationship activates many elements of an adult’s ingrained expectations and behaviors, there has been an increasing interest in examining the relationship between patient and therapist from an adult attachment theory perspective. Bowlby (1988) reasoned that a therapist should seek to provide a ‘secure base’ to satisfy the patient’s need for an emotionally available, responsive, and empathic ‘companion.’ In fact, the majority of Bowlby's ideas were derived from his clinical work with delinquent children, and he intended attachment theory to be used as a clinical theory. However, his theory has primarily remained in the domain of developmental psychology and has only recently been increasingly used in research methods for clinical groups and their treatment (Holmes, 1993, 2001; Slade, 1999).

The fact that Bowlby’s theories have produced significant success in elucidating the relationship between attachment organization and psychopathology (Fonagy et al., 1996) suggests that exploring the clinical usefulness of adult attachment theory in the therapeutic relationship has merit. Recent research (Fonagy et al., 1996) has provided strong support for Bowlby’s (1980, 1988) predictions that unresolved difficulty in early relationships is significantly associated with psychiatric disorder. Dozier, et al.’s (1999) review of research examining the relationship between attachment processes and adult psychopathology further supports attachment theory’s predictions by determining that
psychiatric disorders are almost always associated with nonautonomous states of mind characteristic of an insecure attachment organization.

Given that an insecure attachment organization appears to have some correspondence with psychopathology, the question remains as to how attachment organization informs clinical practice. Several skilled therapists (Blatt, 1995; Lichtenberg, 1989) suggest that attachment classifications should be considered analogous to metaphors or guides in clinical listening rather than as mutually exclusive types. Similarly to the usefulness of the patient’s diagnosis, a patient’s attachment classification helps the therapist to understand and make sense of the patient’s experience. Slade (1999) astutely places primary emphasis on “understanding the function of the regulatory strategies associated with specific attachment classifications. This allows therapists to understand the dynamic properties of patients’ representational models -- how the patient’s ways of thinking and behaving in relationships are meant to evoke particular kinds of responses and relationships” (p. 585). From this viewpoint, the therapist’s attention to attachment classification provides a unique perspective on the patient’s psychological structure on a hypothetical continuum of affect regulation and structure (Slade, 1999).

For example, the treatment of individuals with a preoccupied attachment organization often involves attending to their relative absence of structures for regulating affect and the resultant underregulation of attachment-relevant feelings, memories, and cognitions (Slade, 1999). These patients are characterized as captive to their overwhelming affect, and therefore they have great difficulty making use of the therapeutic relationship for collaboration rather than dependence (Dozier et al., 1990).
Preoccupied individuals seem to have difficulty making use of a therapist's words in a constructive way. Research suggests that preoccupied patients are both especially difficult to treat and have the least success in outcome studies (Fonagy et al., 1996). From an attachment theory perspective, the formidable therapeutic goal with preoccupied patients is to slowly create structures for affect modulation (Slade, 1999).

The implication of these proposed therapeutic interventions is that identification of a patient's attachment organization can promote change in the structure which perpetuates maladaptive affect regulation. Drawn directly from Bowlby's (1988) secure base concept, patients are encouraged to contemplate and 'reexperience' their life story in a safe environment. The argument is that a sensitive therapist can provide new meaning and structure to life events and therefore facilitate growth in the patient's sense of self and relationships (Gergeley & Watson, 1996; Slade, 1999). From this perspective, it is assumed that reexperiencing a powerful attachment relationship in the context of a healthy therapeutic relationship will be curative in itself over time. The structural change sought in the application of attachment theory to treatment is essentially analogous to positive change in the patient's personality structure.

The contention that attachment organization patterns are amenable to change in adulthood is not without controversy. Specifically, Fraley's (2002) recent meta-analysis suggests that attachment organization is largely fixed over time. Fraley's findings indicate that Bowlby's proposed investment in providing new attachment experiences in the therapeutic relationship would not substantially change the patient's attachment organization or their resultant personality structure. The revisionist perspective and prototype perspective contrast the differing beliefs about attachment stability over the
lifetime (Fraley, 2002). The revisionist perspective involves the contention that childhood internal working models of attachment are revised based on ongoing experience and may or may not correspond to later adult internal working models (Kagan, 1996; Lewis, 1997, 1999). This view holds that relationships that are incompatible with previous expectations such as the therapeutic relationship induce change.

Alternatively, the prototype perspective holds that the adjustments to a person's childhood internal working models of attachment do not fundamentally alter these mental representations, and they continue to shape interpersonal interactions throughout the lifespan (Owens et al., 1995; Sroufe et al., 1990). This model suggests that the therapeutic relationship would largely elicit a reactivation of early attachment experiences with little hope for fundamental change in the patient's internal working model. As stated above, Fraley's (2002) findings support this latter perspective. While one study should certainly not be considered the final word on the issue of attachment stability throughout the lifespan, the provocative findings need be addressed by future researchers. Given their implications, these findings are particularly relevant to psychotherapy researchers interested in the application of attachment theory to clinical practice.

**Therapeutic Alliance**

Freud originally introduced the concept that the relationship between the patient and the therapist has a powerful impact on therapeutic outcome (Freud, 1913). Freud argued that the “unobjectionable” or positive transference in the therapeutic relationship was the “vehicle for success” (Freud, 1912, p. 105) in psychotherapy. He defined the
transference as “new editions or facsimiles of the tendencies and phantasies which are aroused and made conscious during the progress of analysis; they replace some earlier person by the person of the physician” (Freud, 1912, p. 106). In other words, the patient transfers primitive sexual and aggressive infantile fantasies onto the analyst. Freud saw the unobjectionable transference as facilitative of change because it did not involve the distortions of the relationship that were central to the concept of the neurotic transference.

Subsequent psychoanalytic theorists such as Sterba (1934), Zetzel (1956), and Greenson (1965, 1967) championed perspectives that clarified the contribution of transferential versus reality-based elements of the therapeutic alliance. In line with Freud, these theorists continued to view the therapeutic alliance as facilitative of change rather than seeing the alliance as curative in itself. The 1950’s witnessed the emergence of outspoken critics of this perspective, most notably Carl Rogers (1957; Rogers, Gendlin, Kieser, & Truax, 1967). Rogers argued that the therapeutic relationship is both reality-based and directly responsible for change. While Rogers’ conception of the mechanisms of change were ultimately not well-supported by research (Mitchell, Bozart, & Krauft, 1977; Bachelor, 1988), his perspective introduced a needed corrective so that both the unconscious-facilitative conception and the reality-based, “effective ingredient” notion of the alliance could be appreciated (Horvath, 2006).

Luborsky (Alexander & Luborsky, 1987; Luborsky, 1976) and Bordin (1976, 1994) restored interest in the therapeutic alliance by operationalizing the concept. While both were informed by psychodynamic theory, Luborsky and Bordin broadened the concept of the alliance to include all types of helping relationships. Their formulations therefore implicitly emphasized the conscious, reality-based elements of the alliance.
However, their conceptualizations never dismissed the impact of unconscious forces on the alliance and thus remained attractive to researchers who favored a strong unconscious influence as a powerful force in shaping the alliance. This transition to a pantheoretical conceptualization of the alliance made it palatable to a wide range of theorists and helped moved the alliance into the forefront of psychotherapy research. While Bordin seemed to favor a conception of the alliance as an active ingredient in promoting change (Bordin, 1994) and Luborsky slightly favored the facilitative slant on the alliance (Luborsky, 1984), their lack of clarity on this topic contributed to ambiguity that made it difficult to theorize how the alliance facilitated change in the therapeutic process (Horvath, 2006). This dilemma continues to make it difficult to deconstruct the alliance concept and to fully understand the mechanism by which the alliance plays a significant role in almost any form of therapy (Horvath, 1994; Horvath & Bedi, 2002; Martin, Garske, & Davis, 2000).

Efforts to more fully understand this process were aided by Horvath and Greenberg’s development of the Working Alliance Inventory (WAI; 1989). The WAI is explicitly based on Bordin’s tripartite conception of the alliance. It focuses on the alliance as comprised of collaboration on the tasks and goals of therapy founded on an affective bond between patient and therapist. The fact that the WAI was used in 40% (80 of 199) of the studies in a recent meta-analytic review (Martin, Garske, & Davis, 2000) speaks to the clinical utility of aligning an inventory with an overall rationale for its individual items (Hatcher & Barends, 2006). Though many definitions of the therapeutic alliance exist, Constantino, et al. (2002) offer a succinct characterization:
...it is generally agreed that the alliance represents interactive, collaborative elements of the relationship (i.e., therapist and client abilities to engage in the tasks of therapy and to agree on the targets of therapy) in the context of an affective bond or positive attachment (p. 86).

While relational theorists such as Safran and Muran (2000) advocate the use of Bordin’s conception of the alliance, they argue that the patient and therapist “negotiate” the alliance rather than simply collaborating to form the alliance. In other words, Safran and Muran conceptualize the alliance as a continual negotiation between the patient and therapist which recasts the alliance as a “constantly shifting, emergent property of the therapeutic relationship” (2006, p. 288). Safran and Muran reject the idea that the alliance is a static variable that facilitates change. Rather, they see this continual negotiation as an “important change mechanism in and of itself, insofar as it helps patients learn to negotiate the needs of self and others in a constructive fashion, without compromising the self or treating the other as an object” (Safran & Muran, 2006, p. 288). Safran and Muran therefore see this process of negotiating the alliance as a way for the patient to induce change by encouraging engagement in “authentic relatedness” with another human being. Their use of Bordin’s alliance conceptualization highlights its flexibility because they argue that both conscious and unconscious forces impact this ongoing process of negotiation. Safran and Muran commend Bordin for effectively sidestepping the debate over conscious versus unconscious forces by focusing on tasks, goals, and the bond in his alliance conceptualization (2006).

In using this tripartite conceptualization, the WAI affords the opportunity to measure the quality of the alliance throughout the therapy from the perspective of the patient, the therapist, and an outside observer. This use of the WAI enables researchers to capture the more fluid conception that has emerged since Bordin originally characterized
the alliance as essentially uniform across time. This fine-grained observation of the alliance has resulted in a host of intriguing results such as the consistent findings that client and therapist views of the alliance diverge, particularly early in therapy (Horvath & Bedi, 2002). Furthermore, the client’s perspective on the alliance early in treatment tends to be most predictive of therapeutic outcome (Horvath & Bedi, 2002). These findings support the view that the alliance changes over time and that the initial phases of therapy are particularly crucial for future outcome. Castonguay, et al. (2006) cogently argue that the use of tools such as the WAI enable therapists to attend to discrepancies in their evaluation of the alliance versus that of the client so that the therapist can be attuned to ruptures that may not be readily observable. The import of Castonguay, et al.’s (2006) observation is underscored by the direct clinical implications of such research findings. It is particularly relevant given that poor early alliance predicts client dropout (Constantino et al., 2002).

From a broader perspective, multiple studies have established that the therapeutic alliance correlates positively with outcome (Horvath & Bedi, 2002; Martin, Garske, & Davis, 2000). Multiple meta-analyses have demonstrated that the effect size for the alliance-outcome association ranges from .22 to .26 (Horvath & Bedi, 2002; Martin, Garske, & Davis, 2000). While a correlation in the area of .25 only translates to approximately 6% of the outcome variance attributable to the alliance, this small effect size appears particularly robust (Horvath & Bedi, 2002). Additionally, Horvath and Bedi convincingly contend that this effect size should be considered substantial for a variable being measured within the complexity of an entity like psychotherapy (2002).
Hatcher and Barends (2006) have recently argued that this effect size could be increased by adopting a more theoretically consistent version of measures such as the WAI. They contend that the crux of Bordin’s definition is that the “alliance describes the degree to which the therapy dyad is engaged in collaborative, purposive work” (Hatcher & Barends, 2006). Hatcher and Barends’ discussion highlights an important distinction between the alliance and the therapeutic relationship. That is, the alliance asks a pointed question about the relationship: “In what way, and to what extent does this relationship reflect, embody, and assist the participants’ purposive, collaborative work” (Hatcher and Barends, 2006, p. 294). Hatcher and Barends also poignantly address the relationship between the alliance and technique. From their perspective, psychotherapeutic technique manifests and contributes to good alliance. For Hatcher and Barends, the “alliance is actualized when technique engages clients in purposive work.... Technique is an activity; alliance is a way to characterize activity” (2006, p. 294).

Hatcher and Barends’ argument logically leads them to question Bordin’s conception of the bond in his seminal article on the therapeutic alliance (Bordin, 1979). Hatcher and Barends establish that Bordin articulated two different bond concepts. The first relates to the overall experience of liking, trust, and respect that develops during therapy. This emphasis on the “affective bond” has been the source of extensive research (e.g., Martin, Garske, & Davis, 2000). The second bond concept offered by Bordin focused on the requirement that the bond be strong enough to support the therapy’s goals and tasks. Hatcher and Barends contend that this second concept of the bond offered by Bordin would be aptly characterized as the “work-supporting bond” (2006, p. 296). They argue that the affective bond is too broad to effectively serve as an operational definition
for the alliance because it is not linked to the fundamental issue of the alliance: joint purposive work. The theoretical consistency of this argument is supported by Hatcher and Barends’ provocative observation about the affective bond: “It is possible to like and admire someone who is nevertheless not working with you effectively” (1996, 2006, p. 296).

While Hatcher and Barends applaud the WAI relative to other measures for its adherence to Bordin’s well-conceived notion of the alliance, they lobby for ridding the WAI of questions linked solely to the affective bond. For example, Hatcher and Barends argue against the continued use of WAI questions such as, “Do you like and respect your therapist?” Rather, they would alter the question to read, “Do you like and respect your therapist enough to do the work you expect to do in your therapy?” (2006, p. 296). It appears promising to conceptualize the alliance in this way in order to promote more predictive validity in alliance measures such as the WAI.

That being said, some have argued persuasively that it is premature to conclude that a causal connection between the therapeutic alliance and outcome has been established (Crits-Christoph et al., 2006). These critics contend that reverse causation and the influence of third variables have not been sufficiently ruled out as explanations for good outcome. Taking third variables as an example, several studies have demonstrated that the quality of a patient’s past and present relationships is positively related to the alliance (Kokotovic & Tracey, 1990; Mallinckrodt, 1991; Piper et al., 1991). Alternatively, dismissive and preoccupied attachment styles are correlated with poor initial alliances (Eames & Roth, 2000; Ogrodniczuk et al., 2000; Rubino et al., 2000; Tyrrell et al., 1999). These findings support one of the present study’s hypotheses that
patients with secure attachment styles will produce higher therapeutic alliance and outcome scores while those with insecure attachment styles (i.e., dismissive and preoccupied) will produce lower therapeutic alliance and outcome scores. However, this begs the question as to whether the attachment style itself is driving the outcome rather than the therapeutic alliance.

The above-mentioned critiques of alliance-outcome findings (Crits-Christoph et al., 2006) cannot be taken lightly. Further exploration of these important issues is needed. For the purposes of clarity, the present study will assume that the causal connection between the alliance and outcome will become more firmly established in future research. Therefore, the current study will proceed from the perspective that the alliance has a causal impact on outcome.

Reflective Functioning

Given their emphasis on negotiating the alliance, contemporary relational psychoanalysts like Safran and Muran (2000) are particularly interested in the adult attachment theory concept of reflective functioning that has received increasing attention since Main's seminal writing on the topic (1991). Reflective functioning is defined as the capacity to understand that beliefs, intentions, and desires are simply mental representations in the self and others. As such, they are considered states-of-mind. Reflective functioning further requires performing mental operations or reasoning about these often changing mental states (Fonagy & Target, 1998). The concept of reflective functioning grew out of Main's appreciation for the concept of metacognition first described by Brown, et al. (1983). Brown and colleagues conceived of metacognition as an individual's knowledge about cognition as evidenced by demonstrating a grasp of
concepts such as the appearance-reality distinction. Additionally, metacognition involved the regulation of cognition, or metacognitive monitoring, in the form of such activities as cross-checking for errors.

Main’s 1991 article outlining metacognitive explanations for attachment behavior was pivotal because attachment theorists (Bowlby, 1980; Peterfreund, 1971) previously “tended to emphasize mental suffering as opposed to cognitive factors as the primary explanation for the early ‘defensive exclusion’ of a given idea from further processing” (p. 139). Though Main expressed uncertainty about whether coherence caused enhanced metacognitive monitoring or whether metacognitive monitoring caused enhanced coherence, she suggested that multiple models develop because of failure to adequately develop metacognition or corrective metacognitive monitoring (Main, 1991).

Based in part on Main’s emphasis on metacognition, Fonagy and his colleagues (Fonagy et al., 1991; Fonagy et al., 1994) developed a reflective functioning scale to determine whether reflective functioning appeared to be a causal mechanism in coherence. This early research demonstrated that reflective functioning was a good predictor of infant-parent attachment security. They found that both fathers and mothers who demonstrated a high level of reflective functioning were between three to four times more likely to have secure children than parents whose reflective capacity was poor. Bolstered by empirical support for the validity of the concept as predictive in its own right, Fonagy and his colleagues (1998) developed the reflective functioning manual based on their evidence demonstrating that coherence was a manifestation of metacognitive monitoring. As Fonagy, et al. (1995) explained, the mother’s capacity to understand her child’s mental states and her “readiness to contemplate these in a
emergence of reflective functioning as central to the production of coherence in attachment-relevant situations suggests that coherence entails a constructivist process whereby the subject is reevaluating their story as they tell it (Slade, 1999). Reflective functioning is therefore a complex and dynamic process involving the ability to reflect upon internal affective experience in an ongoing way (Fonagy et al., 1998).

Reflective functioning has thus gained increasing attention from psychotherapy researchers from the relational tradition (Safran & Muran, 2000). Slade (1999) succinctly captures why this is so in her observation that “reflective functioning permits a more developed, complex, and affective representation of the self, inner experience, and intimate relationships. Above all, it may provide protection against the damaging effects of abuse and trauma” (p. 581). While the deepening of an individual’s experience of the self and relationships with others is compelling in itself, the apparent protective quality of reflective functioning further enhances its appeal as a curative factor in psychotherapy.

To return to the previous focus on patients with a preoccupied attachment organization, it seems these individuals have an impaired ability to reflect on emotions in the self and others. Instead, they simply respond to affective cues. This limited reflective ability clearly contributes to the finding that such individuals do poorly in terms of psychotherapy outcome (Fonagy et al., 1996; Slade, 1999). Patients with a dismissing attachment organization likely possess a similarly impaired ability for reflection; it seems that they tend to simply withdraw from affective cues. As is the case with preoccupied patients, the limited reflective ability of dismissing patients plays a role in their
historically poor psychotherapy outcome (Eames & Roth, 2000; Ogrodniczuk et al., 2000; Rubino et al., 2000; Tyrrell et al., 1999).

**Therapeutic Attachment Scale**

The Therapeutic Attachment Scale (TAS) is a recently developed measure of the patient-therapist relationship (Bowman, 2005). This observer-rated measure is grounded in adult attachment theory (Fonagy et al., 1998; Hesse, 1999; Holmes, 1993, 2001; Main, 1991; Slade, 1999) and is designed to capture a patient’s attachment organization by analyzing their narrative style when speaking about their therapist in the Patient-Therapist Relationship Interview (PTRI) (Diamond et al., 2000). Coding groups are used to categorize patient attachment patterns as observed in videotapes of the interviews.

Attachment theory’s expanded definition of coherence remains central to the attachment classification of the TAS because the measure explicitly incorporates the AAI scoring and classification system (Bowman, 2005; Main, 1993). However, the TAS does not produce coherence of transcript and coherence of mind ratings separately. Hence, the linguistically derived coherence of transcript is blended with the cognitive, plausibility-based coherence of mind. The TAS also incorporates items from the Reflective-Functioning manual (Fonagy et al., 1998), Kobak’s Q-sort coding manual (1995), and other existing scales (Samstag et al., 1998) to create its attachment organization categories. Although research suggests that attachment theory’s concept of coherence is a manifestation of reflective functioning (Fonagy et al., 1995, 1998), the explicit incorporation of reflective functioning into the TAS attachment classification departs from Main’s AAI approach. The TAS method produces a more complex conception of
attachment organization and marks somewhat of a departure from the traditional attachment theory reliance on coherence per se to determine attachment categorizations. This complexity is further increased by the incorporation of the other scales (Kobak, 1995; Samstag et al., 1998) into the TAS as well. As is the case with the AAI, the TAS designates four subscales which characterize different attachment organizations: (1) Secure, (2) Dismissing, (3) Preoccupied, and (4) Unresolved. In accordance with the scales from which the TAS was derived, coding emphasizes the manner in which subjects verbalize their experiences rather than the content of their speech.

While aligned with attachment theory, the TAS originates from burgeoning efforts among psychotherapy researchers and theorists in relational psychoanalysis to use attachment theory, and narrative coherence in particular, to better understand the therapeutic alliance (Bowlby, 1988; Diamond, et al. 1999; Holmes, 2001). Much of this interest stems from Bowlby’s aforementioned contention that the psychotherapy relationship activates many elements of an adult’s ingrained expectations and behaviors (1988). Attachment theorists’ conception of narrative coherence is particularly appealing because it allows psychotherapy researchers to operationalize aspects of the therapeutic alliance.

The contention that the quality of the therapeutic alliance is the strongest predictor of a good psychotherapeutic outcome (Horvath & Symonds, 1991; Martin, Garske, & Davis, 2000) is perhaps the most often quoted finding in psychotherapy research. However, the complexity of deconstructing the components of a strong therapeutic alliance has created more questions than answers as to the causal mechanisms of this relationship. The TAS is predicated on the belief that attachment theory’s
conception of narrative coherence can provide some of those answers. Though the TAS explicitly includes reflective functioning in determining attachment organization, coherence remains the primary indicator of attachment classification because well-developed reflective functioning should necessarily produce coherent discourse. As Bowman states, "measurement of narrative coherence and mentalization provide meaningful information about the way adults negotiate important interpersonal relationships, and it is hoped that systematizing these into a reliable and valid measure will shed new light on relationships between patients and therapists and the therapeutic alliance" (2005, p. 91).

While previous attempts have been made to quantify the quality of a patient's attachment to their therapist (Mallinckrodt et al., 1995), the self-report format of these efforts was limiting because of attachment theory's central tenet that the quality of attachment often occurs at an unconscious level. In fact, Hazan and Shaver's (1987, 1990) previously mentioned extension of adult attachment theory to romantic relationships is subject to similar criticism because of its reliance on consciously held attachment styles. This approach differs from Main and colleagues' (1993) methodology which relies on assessment methods (AAI) to evaluate internal working models that are both conscious and unconscious. This emphasis on including unconsciously held beliefs appears particularly important given that empirical research suggests that there is little correspondence found between attachment styles assessed through self-report and internal working models of attachment assessed through interview (Bartholomew and Shaver, 1998; Crowell, Treboux and Waters, 1999). Fonagy, et al.'s (1998) meta-analysis illustrates that self-reported perceptions of relationships have consistently proven to
access individual perceptions of how relationships are managed. Conversely, observer-rated measures such as the AAI are most likely accessing the intrapsychic underpinnings of attachment.

The development of the TAS (Bowman, 2005) represents an effort to fill the void in observer-rated measures which assess the attachment organization and associated mental representations that emerge in the context of the therapeutic relationship. The TAS is used to rate a patient’s attachment to their therapist as measured during third-party patient interviews focusing on the therapeutic relationship. This interview, the Patient-Therapist Relationship Interview (PTRI), is an adaptation of the AAI (Main, 1993) and was developed by Diana Diamond and her colleagues (1999) at the Borderline Psychotherapy Research Project at New York Presbyterian Hospital. Similar to the AAI, the PTRI is designed to “shock the unconscious” while also providing “numerous opportunities for the interviewee to elaborate on, contradict, or fail to support previous statements” (Diamond et al., 1999). The PTRI asks the interviewee to provide five adjectives that characterize their relationship with their therapist as well as specific incidents to support their characterizations. If a detailed account of a specific example is not provided, the interviewer presses more firmly two times before moving on (Diamond et al., 1999). The PTRI also explores such issues as separation, loss, rejection, and the impact of the interviewee’s relationship with their therapist on the patient’s personality. For example, the following series of questions is typical:

Have you felt rejected by your therapist? How did you respond? Are there any particular instances that stand out in your mind? Why do you think your therapist did those things? Do you think he/she realized he/she was rejecting? (Diamond et al., 1999)
Interviewers are instructed to proceed through such series of questions if the interviewee does not spontaneously include all of these elements in their response.

For the purposes of the Brief Psychotherapy Research Project (BPRP) where the TAS was created, the PTRI has been modified to include questions involving rupture resolution (Safran & Muran, 2000) and treatment items from the BPRP. Ruptures in the therapeutic alliance are rifts that develop between the therapist and patient throughout treatment. The negotiation involved in resolving these rifts has been a point of emphasis for many years for the principal investigators at the BPRP, Jeremy Safran and Chris Muran (2000). The following is an example of a question focusing on rupture resolution:

Did you experience any tension, problems, conflicts or misunderstandings in your relationship with your therapist? Can you describe a specific instance? When did the event occur in the course of treatment? What was your understanding of the cause of the event? What was your initial feeling or experience of it? Was this addressed or discussed? Who first addressed it? What was the reason you think it was addressed? What was it like to discuss it?

As was the case with the traditional PTRI questions, interviewers proceed through such series of questions only if the interviewee does not spontaneously offer these elements in their response. Treatment questions included items such as, “How did you feel about the length of treatment? Was it difficult to end after 30 sessions?”

Psycholinguistic Perspective

Previous research has argued that attachment theorists measure coherence by attending to broad thematic and theoretical parameters within narratives (Phillips-Stoll & Schober, 2005). While the above discussion of Main’s attachment theory-based definition of coherence would appear to contradict this claim, a closer analysis reveals otherwise.
Main’s incorporation of ‘coherence of mind’ with its emphasis on plausibility into her
definition of coherence clearly qualifies as one such broad parameter. However, her
reliance on Grice’s (1975) maxims to establish ‘coherence of transcript’ as a linguistic-
based contributor to the attachment theory definition of coherence is similarly broad
(Main, 1991). Grice’s maxims are largely theoretical with little guidance as to how such
broad concepts should be defined. For instance, how does one quantify truthfulness and
the appropriate amount of evidence to support a statement as Grice’s maxim of quality
suggests? In the realm of psycholinguistics, Grice’s maxims are considered highly useful
as an orienting perspective. However, their lack of specificity is generally regarded as
problematic in terms of practical application. Attachment theory therefore operates from
a macro-level definition of coherence whereby the concept is generally known to raters
based on their intuitive grasp of Grice’s maxims (Phillips-Stoll & Schober, 2005).

Psycholinguists define coherence very differently. Their micro-level perspective
focuses on measuring coherence by analyzing how textual components of the narrative
interact to create cohesive, meaningful wholes (Phillips-Stoll & Schober, 2005). In fact,
from a psycholinguistic perspective, coherence is not considered a property of a narrative.
Instead, coherence exists only as a psychological construct for the narrative’s reader who
perceives a text as coherent if its components are linked in a meaningful and rational way
(Graesser et al., 2004). Hence, psycholinguists analyze a text’s cohesion rather than
coherence, which is in the mind of the comprehender. Cohesion creates the impression of
coherence for a text’s reader and is the quality of a text that promotes the meaningful
exchange of information (Graesser et al., 2003; Halliday & Hasan, 1976; Louwerse,
2002). Word-by-word lexical and grammatical choices connect components of a text to
create a unified whole and allow for a precise measurement of the text’s cohesion (Phillips-Stoll & Schober, 2005).

The concept of cohesion in linguistics was first developed by Hasan (1964) and later popularized by Halliday and Hasan (1976). The preface to Halliday & Hasan’s seminal book on cohesion criticized the historical lack of emphasis on semantics within linguistics. It pointed out that a disproportionate amount of linguistic research was being done on phonology, morphology, and syntax. While Halliday and Hasan were rightfully considered linguists, their work foreshadowed the increasing emphasis on psycholinguistic research and helped to bridge the divide between the two disciplines.

Halliday and Hasan clearly stated their position by asserting that cohesion is a semantic relation, not a structural relation (1976). While cohesion is therefore considered to be a textual construct (Graesser et al., 2003; Louwerse, 2001; Louwerse & Graesser, in press), it is not a syntactic construct. Rather, it is a relational concept that involves linking items in discourse together through textual features that denote relations in meaning. While cohesion is often identified by the presence of a particular class of items in a text, it is the relation that these items suggest rather than their mere presence that is critical (Halliday & Hasan, 1976).

Cohesion is often considered to be both grammar-driven and vocabulary-driven (Givon, 1995; Kintsch, 1995). Grammar-driven cohesion primarily refers to the grammatical information in the text that generates inferences such as the use of therefore to signal causal relations between sentences. Vocabulary-driven cohesion largely refers to the vocabulary of the clause that generates inferences based on knowledge. For example, the use of Rebecca in one sentence followed by the use of she in the next establishes
cohesive relations between the two sentences based on the knowledge of who she refers to. Human language uses these two modes to process discourse. The vocabulary-driven mode is considered pregrammatical whereas the grammar-driven mode is grammatical (Louwerse, 2001). Though cohesion is often found within a sentence, the construct generally refers to relations between sentences. Syntactic relations are largely responsible for establishing meaning within a single sentence (Halliday & Hasan, 1976).

When considering the relation between cohesion and coherence, it is important to understand that cohesion facilitates coherence; it is not synonymous with coherence. That is, “it is predicted that cohesion is sufficient, although not necessary, for coherence” (Louwerse, 2001, p. 292). Sometimes an ambiguous cohesion relation can be understood as an unambiguous coherence relation (Louwerse, 2001). For example, McNamara and her colleagues (McNamara, 2001; McNamara & Kintsch, 1996; McNamara et al., 1996) have found some interesting connections between cohesion and world knowledge when students create mental models based on science texts. As expected, McNamara, et al. (1996) found that readers with less prior scientific knowledge benefited from science texts with greater cohesion. However, contrary to expectations, they discovered that readers with greater scientific knowledge actually benefited from cohesion gaps in terms of enhanced coherence. To explain this curious finding, McNamara and her colleagues reasoned that the cohesion gaps forced the more knowledgeable readers to make inferences using either their world knowledge or previous textual cues. These inferences in turn facilitated the creation of more connections between the ideas in the text and their world knowledge. The resultant enhancement in the coherence of their mental
representations illustrated that cohesion gaps can in fact be beneficial depending on the comprehender’s previous knowledge about a topic.

**Connectives**

Connectives are considered to be important grammar-driven markers of cohesion. Connectives are categorized based on two dimensions. The first dimension involves determining the state of extension in the situation described by the text. The state of extension refers to whether the event previously introduced in the text is continued or ceased. Positive connectives extend events (Sanders et al., 1992). For example, the following adjacency pair from a recent pilot study (Francis, 2005) illustrates a positive connective:

Interviewer: Okay. Um, were there any changes in your relationship with your therapist over the course of treatment?
Patient: I think that I, towards the middle I kind of got what I was there for, so I think it got better for both of us.

The use of so by the patient in this exchange is considered a positive connective because it extends the event. That is, the patient indicated that he received what he came for in therapy, and it therefore follows that therapy improved for both his therapist and him.

Alternatively, negative connectives cease to extend an anticipated relation (Louwerse, 2001; Sanders, 1997; Sanders & Noordman, 2000). The following (Francis, 2005) exemplifies the use of a negative connective:
Interviewer: ...Um, to what extent do you feel that this problem was resolved to your satisfaction?
Patient: The problem of me talking over her?
Interviewer: I guess so.
Patient: Well, I guess it was resolved because more towards the end of the sessions, I was more perceptive about the fact that she still had more to say. Although I felt that she made a point and that was it. But, you know, it was more like fine-tuning to me.

If the patient was “more perceptive about the fact that she (the therapist) still had more to say,” then the anticipated relation is that the patient would be aware that the therapist was still talking. However, the use of the negative connective although in, “Although I felt that she made a point and that was it,” signifies that the patient continued to misjudge when the therapist was done speaking. These negative relations signaled by negative connectives are synonymous with adversative or contrastive relations in that they are ‘contrary to expectation’ (Halliday & Hasan, 1976; Louwerse & Mitchell, 2003). This positive-negative extension has also been previously termed the ‘polarity’ of the relation. Positive relations are identified by the use of such words as because, before, and moreover whereas negative relations are exemplified by words such as although, until, and however.

The second dimension that differentiates connectives is associated with the type of grammar-driven cohesion cue that marks the semantic relationship between text segments (Louwerse & Mitchell, 2003). These cues are prototypically associated with the use of conjunctions which serve as indicators of coherence between text segments (Louwerse, 2001). The three types of connectives identified for the purposes of the current study are additive, temporal, and causal. Additive connectives consist of words such as moreover and however. Temporal cohesive devices are marked by connectives
such as *before, after, and until*. Causal cohesive relations are marked by words such as *because* and *although* (Louwerse & Mitchell, 2003).

Louwerse argues that additive, temporal, and causal relations actually represent three points on the same axis (2001). He posits that additive relations are the most elemental with temporal relations consisting of a summation of both additive and temporal relations. In the same vein, Louwerse asserts that causal relations are comprised of the summation of additive, temporal, and causal relations. The logical extension of this argument is that causal relations imply temporal relations and temporal relations imply additive relations. Therefore, additivity is always a prerequisite for temporality and temporality is always a prerequisite for causality (Louwerse, 2001).

Recent research from Louwerse and Mitchell (2003) indicates that spoken language has more cohesion relations than written language, dialogue has more cohesion relations than monologue, and informal discourse has more cohesion relations than formal discourse. These high incidences of cohesion relations include causal connectives such as *because, although,* and *if,* as well as discourse particles like *well* and *anyway.* While semi-structured interviews such as the PTRI should not technically be considered spoken informal dialogue, the open-ended nature of the questions combined with the regular use of multiple follow-up questions creates a language setting similar to spoken informal dialogue. Therefore, it appears that connectives will likely play a major role in the textual analysis of semi-structured interviews such as the PTRI.

Louwerse and Mitchell's (2003) explanation for the high incidence of cohesion cues in spoken informal dialogue presages a topic that will be addressed more fully later in this review -- the unique demands of face-to-face conversation. Louwerse and Mitchell
(2003) argue that a higher incidence of cohesion markers would not be expected in spoken informal dialogue because visual and paralinguistic cues would seemingly make cohesion cues less necessary. Their response revisits the issue of cohesion facilitating coherence rather than being synonymous with it. Louwerse and Mitchell assert that the greater incidence of cohesion markers in such spoken informal dialogue does not indicate greater coherence. Rather, it suggests that “because spoken informal dialog has a more dynamic and emergent discourse structure than other genres, it has more cues operating at different levels of the interaction” (Louwerse & Mitchell, 2003, p. 208). They borrow from transactional theories of language and discourse processing (Clark, 1996; Schegloff et al., 1996; Schiffrin, 1987) to illustrate the complexities of face-to-face spoken interactions. One such complexity involves the online processing of messages being delivered by the speaker and those being received from the other person to construct a continually emerging mental representation. Louwerse and Mitchell (2003) suggest that ongoing requirements to signal attentiveness, acceptance, and agreement further complicate the communicative act between the participants. They convincingly argue that the demands of a lack of organized structure in spoken informal dialogue may therefore require more anchors in communication such as a higher density of discourse markers (Louwerse & Mitchell, 2003).

Negative causal connectives involve the use of cohesion cues such as although and nevertheless. The above mentioned example of a negative connective is in fact causal and illustrates the phenomenon: “...I was more perceptive about the fact that she still had more to say. Although I felt that she made a point and that was it” (Francis, 2005). While a high number of negative causal connectives is generally considered to be indicative of
greater cohesion, the fact that the connectives are negative may have special
significance because they may be less cohesive than positive relations. The processing
shift hypothesis (Gernsbacher, 1984) offers insight as to why this may be so (M.
Louwerse, 2005, personal communication).

As part of the structure building framework of discourse comprehension
(Gernsbacher, 1990), processing shifts are hypothesized to occur when situational
continuity is impeded by linguistic devices such as negative causal connectives. Though
the structure building framework has largely focused on the comprehension process of
written text, the framework applies to spoken discourse as well. This structure building
framework posits that comprehenders’ construct mental representations while listening to
spoken information, and they map newly received information onto the evolving structure
in an ongoing fashion. Sentences that are logical consequences of previously mentioned
actions or events tend to facilitate this structure building because they maintain
situational continuity (Gernsbacher, 1990). A high usage of negative causal connectives
would possibly impair continuity. Research has shown that the processing shift required
to build a new mental substructure to appropriately incorporate the new negative
information taxes the comprehender’s working memory (Gernsbacher, 1984, 1985;
Zwaan et al., 1995). Recall that negative connectives cease to extend an anticipated
relation (Louwerse, 2001; Sanders, 1997; Sanders & Noordman, 2000). Given that
increased cohesion is not synonymous with increased coherence, it is possible that a
significantly elevated incidence of negative causal connectives would have a negative
impact on coherence for the listener relative to the impact of positive connectives. The
finding that positive relations are generally processed faster than negative ones (Townsend, 1983) supports this hypothesis.

**Causal Verbs, Causal Particles, and the Causal Ratio**

Coh-Metrix calculates causal cohesion by determining the number of main verbs and particles in the text that are causal. To determine the number of causal verbs, Coh-Metrix uses a lexical database, WordNet (Fellbaum, 1998; Miller et al., 1990), which contains a large number of semantic characteristics of words. WordNet categorizes a verb as causal if it causes something to happen. For example, *defend* denotes that something causes someone to guard against danger. Coh-Metrix calculates causal particles as well because they help the comprehender connect the events and actions with causal relations. Causal particles are characterized by textual devices such as conjunctions, transitional adverbs, and other forms of connectives. Causal connectives such as *since, so that, because,* and *consequently* are the most prevalent causal particles.

It should be noted that *and* and *or* are not classified as causal particles.

As the number of causal verbs and causal particles in a text increases, it is assumed that there is a commensurate increase in causal content that would subsequently facilitate cohesion. However, the causal ratio, which is the ratio of causal particles to causal verbs, is important because of its emphasis on capturing the relationship between causal particles and causal verbs. Cohesion decreases when the text has a large number of causal verbs with few causal particles that indicate how the events and actions are connected (McNamara et al., 2005). The following (Francis, 2005) exemplifies an exchange with a high incidence of causal verbs and particles as well as a high causal ratio:
Interviewer: Um hmm. Um, so you also said that your relationship was introspective? Can you describe a memory or an incident that…
Patient: Well, there are a variety of different, collective, um, points that, one of the reasons my husband’s, um, separation was so difficult for me was that I had been an adopted child. So, the, the feeling of abandonment was always very close because I, I felt that I understood that from the very moment of conception on. And so when my husband and I separated, I felt very badly. So it, it was, it was the connecting of that particular part that was very introspective on his part because it was obviously intimately connected, that I felt terribly abandoned but more so because my Achilles heel was abandonment anyway. So, it was like, ‘Oh, matching book ends.’

**Concreteness**

One group of prominent linguists defined concreteness in terms of "directness of reference to sense experience" (Paivio et al., 1968). The polar opposite of concreteness is abstractness. Concreteness ratings are often produced by subjects consisting of college students who rate nouns in isolation on a seven-point scale. The nouns are generally culled from large databases of words.

A concept closely related to concreteness is hypernymy, which represents the abstractness of a word. A word is considered abstract when it possesses few distinctive features that can be pictured in the mind. Coh-Metrix measures the abstractness of a word by determining the hypernym value using an online lexical reference system (WordNet; Fellbaum, 1998; Miller et al., 1990). English nouns, verbs, adjectives, and adverbs are organized into semantic fields of underlying lexical concepts. Some sets of words are functionally synonymous because they have the same or a very similar meaning. One relationship between these sets is the hypernym metric, which is the number of levels in a conceptual taxonomic hierarchy above a word. To use an example from the creators of Coh-Metrix, *chair* (as a seat) has 7 hypernym levels: seat -> furniture -> furnishings -> instrumentality -> artifact -> object -> entity. A word having more hypernym levels is
less abstract, or more concrete. The high causal verb and particle incidence example cited above (Francis, 2005) exhibits low concreteness. That is, the excerpt possesses a relatively high proportion of abstract language. In contrast, the following excerpt (Francis, 2005) illustrates high concreteness as well as a low incidence of causal verbs and particles:

Interviewer: Um, to what extent do you think that problem was resolved to your satisfaction?
Patient: Um, well I think, you know, as I gradually got used to coming, um, um, I guess we discussed that, um, particular thing I just said about, you know, telling the story and the history of how I’d been feeling, um, when I was getting ready to go to the second therapist for medications, uh, because part of my initial response was, ‘Do I really have to?’ We talked about it for a couple different sessions. What was it going to be? And I, and I do remember asking her, ‘Do I really have to see a psychiatrist? Can any M.D. prescribe this and why? And the way I feel about that, you know, just kind of having to explain it all to him. So I guess that was the only time that we discussed that. But, you know, it but, you know, the subject of, uh, reluctance was an ever present topic, um, until I became the gabby person that I am today.

This excerpt depicts high concreteness via a significantly high mean hypernym value of nouns and a significantly high mean value of verbs.

While concreteness is not considered a direct measure of cohesion, it is often closely associated with the construct. Concreteness has been established as a consistent contributor to comprehensibility and subsequently coherence (Paivio, 1991; Schwanenflugel, 1991). Concrete text has been repeatedly found to be more comprehensible, interesting, and memorable than abstract text (Sadoski et al., 2000). Additionally, ‘concreteness effects’ suggest that words representing concrete concepts (e.g., doctor) are processed more quickly and accurately than words representing relatively abstract concepts (e.g., intellectual) (Holcomb et al., 1999). Sadoski and colleagues (2000) argue that the importance of concreteness for comprehensibility
suggests that the coherence of abstract material in the educational setting could be enhanced by concrete referents such as examples and metaphors.

**Coh-Metrix**

*Coh-Metrix 1.4* (Graesser et al., 2004; McNamara et al., 2002; McNamara et al., 2005) is a computer program designed to assess the coherence of text. Coh-Metrix adopts the psycholinguistic definition of coherence. The program takes advantage of the most recent advances in “computational linguistics and discourse processing...to automate many language- and text-processing mechanisms” (Graesser, et al., 2004, p. 193). Coh-Metrix then links these findings to evolving research in psycholinguistics. The program is available on the internet free-of-charge to registered users.

Coh-Metrix was designed to assess the coherence of written texts for the purposes of operationalizing a more advanced concept of comprehensibility. In particular, Coh-Metrix was intended to improve reading comprehension by “providing a means to improve textbook writing and to more appropriately match textbooks to the intended students” (McNamara et al., 2002, p. 1). The research team at the University of Memphis that created the program was especially interested in helping students understand and learn more from texts by advancing comprehension analysis beyond the readability formulas that currently dominate the assessment of educational texts. These readability formulas use simplistic surface structures of language such as word length (number of letters or syllables) and sentence length to analyze difficulty (McNamara et al., 2002). The multiple levels of analysis afforded by Coh-Metrix provide a much more fine-grained analysis of comprehensibility.
Coh-Metrix analyzes texts on over 200 measures of cohesion, language, and readability to ultimately produce 42 linguistic measures which calculate the coherence of texts (Graesser et al., 2004; McNamara et al., 2005). The 21 measures which are specifically designed to capture cohesion fall under the following subcategories: argument overlap, stem overlap, Latent Semantic Analysis (LSA), pronoun density, pronoun ratio, type-token ratio, causal links, connectives, and logical operators (Graesser et al., 2004; McNamara et al., 2002; McNamara et al., 2005). Connectives, causal verbs and particles, and the causal ratio as cohesive devices have been discussed above. The following is a brief synopsis of the other cohesion measures.

Referential cohesion exists when a noun, pronoun, or noun-phrase refers to another component of the text (McNamara et al., 2005). Argument overlap is an aspect of referential cohesion which involves the proportion of the text that shares one or more ‘arguments’ (i.e., nouns, pronouns, noun-phrases). Argument overlap is evident in the example, “Robert always listened to me. I felt he cared about what I was saying.” Robert and he refer to the same individual and thus represent argument overlap. Another component of referential cohesion is stem overlap. This is the proportion of the text that shares one or more word stems. The following exemplifies stem overlap: “I think he loved me very much. He was just a loving person.” Loved and loving share the morphological stem love and represent stem overlap between the two sentences. Coh-Metrix calculates argument and stem overlap both in adjacent sentences and in all sentences in a paragraph (Graesser, et al., 2004; McNamara et al., 2005).

Latent Semantic Analysis (LSA) is a statistical technique for representing world knowledge (Foltz, 1996; Landauer & Dumais, 1997; Landauer, Foltz, & Laham, 1998),
which Coh-Metrix uses as a measure of semantic cohesion and coherence. LSA condenses a very large corpus of texts to 100-500 dimensions and determines the conceptual similarity between any two text elements (e.g., word, clause, sentence, text) based on these functional dimensions (McNamara et al., 2005). For example, the following excerpt illustrates a high LSA score because of the elevated degree of conceptual similarity:

I loved going to the beach with my mom. I remember the waves crashing on the sand and the smell of salt air with the seagulls gliding above the water. I still think of how it felt to have the warmth of the sun on my skin.

The words in this example revolve around the theme of the beach: waves, sand, salt, seagulls, water, sun, and warmth. Text cohesion is assumed to increase as a function of higher conceptual similarity between text constituents. Coh-Metrix produces LSA values for adjacent sentences, one sentence in relation to all other sentences, and paragraphs in relation to other paragraphs (Graesser et al., 2004; McNamara et al., 2005).

Pronoun density refers to the number of personal pronouns per 1000 words. A large number of pronouns can cause cohesion difficulties if the comprehender is unclear as to what the pronouns are referencing. For example, “Dr. Johnson kept focusing on the relationship between he and I in the room, but I wanted to talk about my problems with my brother. He and I don’t always agree.” In this excerpt, it is unclear who he refers to in the last sentence. A higher number of pronouns increases the possibility that referential problems may occur (McNamara et al., 2005). The pronoun ratio indicates the ratio of pronouns to the frequency of noun-phrases in a text. A high density of pronouns compared to the density of noun-phrases creates problems because it contributes to confusion regarding the reference of the pronoun. For example, “I appreciated Dr. Johnson’s concern for my health. It made me feel like he cared.” The pronoun it refers to the noun-phrase concern for my health. While this
example illustrates a clear reference because the pronoun ratio is 1, multiple pronouns referring to that same noun-phrase would decrease the pronoun ratio and subsequently increase the probability of referential confusion (Graesser et al., 2004).

The type-token ratio (Herdan, 1960; Templin, 1957) is the number of unique words divided by the number of tokens for these words. Each unique word in a text is considered a type. Each occurrence of that particular word is a token. To provide a concrete example, if the word therapist is used four times in the text, it would have a type value of 1 and a token value of 4. If the type-token ratio is 1, then each word occurs only once in the text. This would make comprehension relatively difficult because it would involve encoding many unique words and then integrating them with the rest of the text. A low type-token ratio indicates that words are repeated many times in the text, which should generally increase the ease and speed of text processing (Graesser et al., 2004; McNamara et al., 2005).

Coh-Metrix also determines the prevalence of logical operators. These operators are commonly found in texts that convey logical reasoning. They include or, and, not, and if–then statements as well as variants of these textual devices. Texts with a high density of logical operators are difficult for many comprehenders because they require analytical thought that taxes working memory (Graesser et al., 2004). In addition to the above measures which directly measure cohesion, Coh-Metrix calculates 21 measures which are often closely associated with the construct. These include measures such as word frequency, concreteness, syntactical complexity, and readability (McNamara et al., 2005).
The multifaceted cohesion analysis offered by Coh-Metrix opens the door for alternative uses. Though the program has not been validated for use with spoken dialogue, the increased use of some cohesion relations such as connectives in dialogue (Louwerse & Mitchell, 2003) constitutes firm theoretical ground upon which to argue for the value of such an in-depth cohesion analysis.

On the other hand, as will be explained below, one of the primary distinguishing features of the spoken word is that the speaker and the hearer share common ground and many of the cohesive devices analyzed using Coh-Metrix may not be needed (M. Louwerse, personal communication, 2005). This suggests that the cohesive devices analyzed by Coh-Metrix may not be entirely necessary for speakers in their effort to produce coherent verbalizations. Alternatively, the use of cohesion markers in spoken dialogue may have a different meaning than it would in written text. For example, a high usage of certain cohesive devices may signal that the speaker actually has less faith in their partner’s comprehension abilities. The speaker may therefore feel compelled to use these devices to compensate for that lack of faith (M. Schober, 2005, personal communication). While further research is necessary to determine the exact nature of these relationships, spoken dialogue likely presents unique challenges to analyzing coherence.

A concern regarding Coh-Metrix’s validity in assessing dialogue is the limited number of words found in many pairs of speech turns (M. Louwerse, personal communication, 2005). Written documentation associated with Coh-Metrix indicates that it was designed to analyze texts with a minimum of approximately 500 words. While Coh-Metrix has in fact been used to assess spoken text in the past (Louwerse et al.,
this analysis generally consisted of spoken content such as lengthy speeches rather than dialogue.

**Common Ground**

As mentioned previously, the dynamic nature of face-to-face dialogue necessitates considering multiple features of the language setting including verbal, paralinguistic, and visual behaviors. While there is no consensus as to the exact nature of the process involved in constructing emergent mental representations in dialogue (Clark, 1996; Clark & Wilkes-Gibbs, 1986; Pickering & Garrod, 2004), transactional theories of language and discourse processing (Clark, 1996; Schegloff et al., 1996; Schiffrin, 1987) view the construction of meaning as a shared process. Grice’s (1975) maxims, which were previously discussed in reference to attachment theory’s definition of coherence, represent an important theoretical starting point from the transactional theory perspective. Grice (1975, 1978) assumed that dialogue involved collective action based on the coordination of content. Transactional theories therefore argue that this coordination on content necessarily assumes an immense amount of shared information or common ground. Common ground is essentially defined as mutual knowledge, mutual beliefs, and mutual assumptions (Clark & Carlson, 1982; Clark & Marshall, 1981; Schelling, 1960).

To complicate matters, the dynamic nature of face-to-face dialogue demands ongoing coordination between partners in a dyad. Therefore, common ground is most appropriately viewed as a process-based construct in which the mutually shared information is updated moment-by-moment (Clark & Brennan, 1991). Clark and his colleagues (Clark & Schaefer, 1987, 1989; Clark & Wilkes-Gibbs, 1986; Isaacs & Clark, 1987) have come to refer to this collective process of updating common ground as
Participants apply the principle of least collaborative effort when grounding the conversation. That is, they try to minimize their collaborative effort en route to establishing common ground (Clark & Wilkes-Gibbs, 1986). Spoken communication involves an ongoing effort to assure ourselves that our message is appropriately understood by our conversational partner. Grounding is therefore critical to effective conversation (Clark & Brennan, 1991). The following discussion illustrates the fact that dialogue is a joint action which requires coordination between the verbal, paralinguistic, and visual domains (Clark, 1996).

Paralinguistic features like hand gestures and head nods convey meaning which is not accounted for in a purely verbal analysis. Further, partners' visual behaviors such as gaze, gesture, and facial expressions communicate interpersonal information. Gaze in particular has been shown to be an important marker of interpersonal attitude or affect (Whittaker, 2003). In fact, previous research demonstrates that visual behaviors conveying affective information via facial expressions or gaze actually exert primacy over the verbal domain when this visual information conflicts with the verbal (Short et al., 1976). Even additional information in the verbal domain such as phonetic cues like intonation and pauses cannot be captured in a purely verbal transcript. These additional features involved in the exchange of information in face-to-face dialogue are just a few of many such factors that contribute to the construction of emergent mental representations.

However, the extent to which visual and paralinguistic features provide distinctive information compared to what is encoded in textual features is entirely unknown (M. Schober, 2005, personal communication). That is, visual and paralinguistic features may simply provide redundant information that could be discerned from a textual
analysis (Newman et al., 2003) such as that in Coh-Metrix and the AAI. This suggests that while visual and paralinguistic cues may provide additional information, it is presently unclear whether the reliance on verbal transcripts inherent in the use of tools such as Coh-Metrix and the AAI necessarily places limitations on a complete understanding of coherence.

While the reliance on videotapes to score the TAS seems to avoid the possible problems with using a purely verbal transcript, psycholinguists advocate a more fine-grained analysis of the language setting than is advocated by the TAS. For example, Metzing and Brennan (2003) recorded participants' eye gaze with a head-mounted eye tracker to establish that addressees interpret the exact same phrase differently when it is spoken by different speakers. The ultimate finding that comprehension is partner-specific illustrates that the dialogue history between the partners is pivotal. Metzing and Brennan's conclusion that pragmatic factors can occur extremely early in comprehension was therefore demonstrated by using highly specific methodology. Ultimately then, the argument at the outset remains valid. The attachment theory definition of coherence adopted by the TAS represents a macro-level perspective on coherence. However, the possible limitations mentioned above in regard to the textual analysis approach suggest that the micro-level definition of cohesion and coherence may also introduce challenges. A criticism of psycholinguists involved in researching dialogue has been that they have only been able to employ the specificity they demand in experimentation in very limited language settings. The complexities involved in assessing exchanges based on psychotherapy are thus much more involved than has generally been attempted.
Pilot Study

A recent pilot study (Francis, 2005) shed light on the relationship between the differing definitions of coherence discussed throughout this review. Given that coherence has been increasingly recognized as a robust indicator of mental health (Baerger & McAdams, 1999; Fonagy et al., 1996; Rude et al., 2004), the pilot study represented an attempt to deconstruct the causal mechanisms of narrative coherence. The study (Francis, 2005) used Coh-Metrix to analyze textual features of Patient-Therapist Relationship Interviews (PTRI) that had been previously scored according to the TAS. The goal was to provide concurrent validity for the TAS. Thus, the study represented an effort to demonstrate that a fine-grained analysis of narrative coherence from a psycholinguistic perspective could significantly enhance the understanding of this construct as it is understood by the attachment theory tradition.

In adopting a method to input the PTRI transcripts into Coh-Metrix, the pilot study (Francis, 2005) argued that analyzing the dialogue at the level of adjacency pairs (Schegloff & Sacks, 1973) was the most effective way to capture the exchange of meaning. Adjacency pairs refer to grouping the utterances of both partners in a dyad together such that the first speaker produces the initial utterance (e.g., the question) and the second speaker produces a reply (e.g., the answer). Given the question-and-answer format of the PTRI, the study argued that this adjacency pair analysis most appropriately captured the emergent creation of mental representations inherent in dialogue. The adjacency pair level of analysis is aligned with transactional theories of language and discourse processing described above (Clark, 1996; Schegloff et al., 1996; Schiffrin, 1987). Practically speaking, this theoretical perspective translated into performing a Coh-
Metrix analysis for every adjacency pair in each interview. The scores for each of the adjacency pairs in a single transcript were then averaged to produce a single score for each of the 42 indices for every interview.

Two primary findings surfaced from the pilot study (Francis, 2005). The first was that several psycholinguistic measures of cohesion provided concurrent validity for the TAS and its resultant categories of attachment organization. In so doing, a more fine-tuned understanding of the disparate psycholinguistic characteristics of the secure and preoccupied attachment categories emerged. These results also provided insight regarding the complex nature of attachment theory’s conception of narrative coherence used in the formulation of the TAS.

The second primary finding arose from the methodology itself in that it illustrated that Coh-Metrix could be utilized to reveal distinct psycholinguistic differences when analyzing the spoken word in a semi-structured interview format (Francis, 2005). Given that Coh-Metrix was designed for text analysis, it was encouraging that the tool yielded a cluster of significant findings in line with expectations concerning the overlap between attachment theory’s narrative coherence and the psycholinguistic concept of cohesion.

The most robust finding to emerge from the pilot study revolved around the use of connectives to achieve greater cohesion among secure patients in contrast to the relative lack of such use among preoccupied patients (Francis, 2005). The use of positive causal and temporal connectives yielded significant evidence of a difference between secure and preoccupied patients use of cohesive measures. The significantly elevated incidence of negative causal connectives among preoccupied patients was considered
likely to have a negative impact on coherence for listeners relative to the impact of positive connectives. It appeared that even when attempting to facilitate coherence, preoccupied patients used counterproductive methods. Hence, the divergent use of causal connectives by secure and preoccupied patients provided the most clear-cut evidence of higher rates of cohesion in patient interviews among securely attached individuals. This finding indicated that the psycholinguistic concept of cohesion had significant overlap with the narrative coherence concept used to create the TAS. This claim was bolstered by the finding that in comparison to preoccupied subjects, secure patients used a significantly greater amount of causal links when being interviewed (Francis, 2005).

The pilot study's (Francis, 2005) results indicating a significantly low concreteness rating for the secure group were perplexing given the potential negative ramifications for cohesion. Patients with securely attached narrative styles actually used far more abstract language than those in the other attachment categories. To explain this discrepancy, the more encompassing definition of narrative coherence used to create the TAS was considered a useful starting point (Francis, 2005). While from a psycholinguistic perspective concreteness contributes to cohesion in many circumstances, the pilot study argued that it is entirely possible that the concept of coherence tapped by the TAS would place overtly abstract language into the securely attached category. The argument was that this is particularly true given the presence of reflective functioning as a major construct in tandem with narrative coherence in the development of the TAS. As explained earlier, reflective functioning is essentially a developmental process whereby one demonstrates the capacity to perform mental operations or reason about mental states in the self and others. The very nature of the construct demands abstract thought. The
pilot study concluded that while reflective functioning and narrative coherence are not mutually exclusive from the perspective of the attachment literature, they may be at odds with one another from the psycholinguistic perspective of cohesion based on its assumed proclivity for concrete language.

The pilot study's overall finding that secure patients as identified by the TAS are more prone than others to produce meaning by using language to link concepts appeared well-supported (Francis, 2005). Coh-Metrix appeared well-suited for analyzing spoken dialogue. These promising results suggested that there may be an increasing role for psycholinguistic analysis in psychotherapy research, and they provided the impetus for undertaking the current study.

**Statement of the Problem**

One purpose of the current study is to extend the previous effort to provide concurrent validity for the TAS by using the linguistic conception of cohesion as captured by Coh-Metrix. Additionally, Coh-Metrix results will be compared to psychotherapy process and outcome measures to determine if cohesion and the linguistic concept of coherence reliably correlate with these measures. It is hoped that cohesion and linguistic coherence will provide a richer understanding of the way coherence influences the therapeutic relationship and contributes to psychotherapy outcome.

**Research Hypotheses**

Based on previous research (Francis, 2005) and the altered methodology for inputting data into Coh-Metrix, it is hypothesized that the current study's findings will revolve around two primary Coh-Metrix measures – concreteness and the incidence of
causal verbs and particles. A high incidence of causal verbs and particles as well as low concreteness are hypothesized to be fundamental elements of good psychotherapy outcome. It is argued that a significantly high incidence of causal verbs and particles is primary. That is, a significantly high incidence of causal verbs and particles is considered to be a necessary condition to facilitate the meaningful use of abstract language.

The emphasis on the incidence of causal verbs and particles in this study is in line with a consistent focus on causal relations as pivotal in spoken informal dialogue. The centrality of connectives in spoken informal dialogue was discussed at length above. To reiterate, causal connectives are the most prevalent causal particles. While the ratio of causal particles to causal verbs (causal ratio) is an appealing measure because it avoids the difficulty of varying text lengths, this study adopts the perspective that the incidence of causal verbs and particles is more meaningful (M. Louwerse, personal communication, 2007). This argument rests on the premise that the incidence of causal verbs and particles is more consistent across situations than the causal ratio (M. Louwerse, personal communication, 2007).

It should be noted at the outset that no significant correlations exist between the four indices of concreteness (mean concreteness value of all content words, mean of the lowest-concreteness words across all sentences, mean hypernym value of nouns, mean hypernym value of verbs). It is argued that each of these indices captures an element of concreteness and that therefore they can each be used to characterize concreteness as a general category. The limitations to this assumption will be addressed in the discussion section.
It is argued that those patient categories that exhibit the combination of a high incidence of causal verbs and particles and low concreteness will produce better outcome. One of these indices isolated from the other will not be sufficient to produce the desired result. Therefore, the incidence of causal verbs and particles will produce a significant positive correlation to the GAS and a significant negative correlation to the SCL-90R, the Patient IIP-64, the Therapist IIP-32, the Patient Target Complaints, and the Therapist Target Complaints. Concreteness will yield a significant negative correlation to the GAS and a significant positive correlation to the SCL-90R, the Patient IIP-64, the Therapist IIP-32, the Patient Target Complaints, and the Therapist Target Complaints. It should be noted that this clustering of Coh-Metrix variables cannot be established via statistical techniques such as a factor analysis because of the limited sample size.

Analysis of the concreteness results from the pilot study (Francis, 2005) has contributed to a refined interpretation of the effects of concreteness in the psychotherapeutic context. While numerous studies cited above indicate that high concreteness typically facilitates cohesion, this study will work from the premise that increased abstract language is a crucial component to psychotherapeutic success. This hypothesis is based on drawing a comparison between abstract language and reflective functioning. The PTRI necessitates that patients display this cluster of cohesive linguistic attributes while struggling with the unconscious and simultaneously focusing on articulating the goals, tasks, and bond involved in their psychotherapeutic work. Therefore, the very nature of the PTRI suggests that responses producing a clustering of a high incidence of causal verbs and particles and low concreteness will be analogous to reflective functioning rather than intellectualization.
The premise that there must be a link between decreased concreteness and an increased incidence of causal verbs and particles to produce good psychotherapy outcome is firmly embedded in linguistic theory. The incidence of causal verbs and particles is a cohesion measure; concreteness is not. It is entirely consistent with linguistic theory to argue that the demands of the psychotherapeutic environment will cause concreteness to have a different impact on cohesion than previous research has demonstrated.

Based on the premise that the cluster of positive behaviors discussed above is correlated with coherence and secure attachment, it is argued that the TAS-generated secure category will produce a significant positive correlation to the incidence of causal verbs and particles and a significant negative correlation to concreteness. Based on research illustrating the predictive power of the initial patient WAI (Horvath & Bedi, 2002), it is further hypothesized that the TAS-generated secure category will produce a significant positive correlation to the initial patient WAI rating. This secure category will produce a positive correlation to good psychotherapy outcome.

Based on previously presented arguments regarding the questionable validity of the unresolved attachment category in the TAS (Bowman, 2005), the current study will exclude analysis of results for this attachment organization.

Given the altered methodology to be used in the current study, it is hypothesized that this study will yield a substantial number of significant correlations to the dismissing attachment category. It is argued that expanding the unit of Coh-Metrix analysis from one pair of speech turns to a cluster of five pairs of speech turns will lead to support for the hypothesis that the dismissing category will produce a significant negative correlation to the number of words in the text. It is further hypothesized that dismissive patients will
produce a negligible correlation to the incidence of causal verbs and particles and a significant positive correlation to concreteness. It is argued that this cluster will lead dismissing patients to produce significant negative initial patient WAI ratings. This dismissing category will yield a positive correlation to poor psychotherapy outcome.

As an insecure attachment category, it is hypothesized that the preoccupied category will produce a significant negative correlation to the incidence of causal verbs and particles and a significant positive correlation to measures of concreteness. Given the fractured, lengthy speech typical of preoccupied patients, it is hypothesized that they will generate a significant positive correlation to the incidence of negative causal connectives. In the absence of the appropriate cluster between concreteness and the incidence of causal verbs and particles, this positive correlation to the use of negative connectives will have a negative impact on process and outcome. Preoccupied patients will exhibit a negligible correlation to the use of positive connectives. As argued above (Francis, 2005), preoccupied patients tend to use counterproductive linguistic devices even when attempting to facilitate coherence. It is hypothesized that preoccupied patients will produce significant negative initial patient WAI ratings. This preoccupied category will generate a positive correlation to poor psychotherapy outcome.

As stated above, previous research suggests that several factors, including symptom relief, appear to influence the WAI when measured at the end of therapy (Crits-Christoph et al., 2006). For this reason, it is assumed that the most profound impact for the above Coh-Metrix indices will be found when measuring the WAI at the beginning of therapy. The client’s perspective on the alliance early in treatment has been emphasized
in these hypotheses because it tends to be most predictive of psychotherapeutic outcome (Horvath & Bedi, 2002).

The results for argument overlap, stem overlap, and LSA will not be provided. Given that the semi-structured interview format involved in this study produced responses similar to informal dialogue, all sentence-to-sentence comparisons in the above categories possess questionable validity. For example, if a patient says, "Okay, what was I saying? Okay, my therapist tried to understand me." These sentences would yield inflated scores on all three indices because the word "okay" would be interpreted as an indication of consistency from sentence to sentence. The abundant use of discourse markers such as this in dialogue provides a challenge to these indices in general. However, dialogue with more extensive speech per turn may yield paragraph-to-paragraph LSA, which would be much more stable (M. Louwerse, personal communication, 2007). The current study simply does not produce consistently adequate response lengths to yield significant paragraph-to-paragraph LSA results.

Another hypothesis of the current study was supported by previous findings (Francis, 2005) and derives directly from the set of hypotheses outlined above. That is, the current study will provide evidence that Coh-Metrix is a suitable tool for measuring dialogue in a semi-structured interview format. Perhaps most importantly, it is hypothesized that linguistic cohesion will emerge as a reliable predictor of psychotherapy process and outcome. In so doing, it may provide an important alternative perspective on how the therapeutic alliance contributes to psychotherapy outcome.
Chapter III

Methods

Design

The current study is being undertaken at the Brief Psychotherapy Research Program (BPRP) at Beth Israel Medical Center. It is an extension of previous research (Francis, 2005) which employed some of the same methodology that will be used in the current study. Both the current and the pilot study (Francis, 2005) are an offshoot of Elizabeth Bowman's dissertation produced in conjunction with the BPRP. Bowman introduced the TAS as a new observer-rated measure designed to reveal patients' narrative style in the context of the therapeutic relationship (2005). Her project sought to establish preliminary reliability and validity for the TAS. She utilized trained coders to rate patient responses to interviewers on the PTRI after the patient had completed psychotherapy treatment. The current study focuses on providing concurrent validity for the TAS by analyzing the cohesion of patient responses in those same interviews. Importantly, the current study also seeks to provide evidence that linguistic cohesion as measured by Coh-Metrix will produce predictive validity for the therapeutic alliance and psychotherapy outcome.

Participants

The subjects were thirteen women and seven men with a mean age of 39.1 years. The subjects engaged in a 30-session, one-time-per-week manualized psychotherapy treatment protocol offered through the BPRP between the years 2000 and 2003. The twenty were selected from the twenty-two subjects involved in Bowman's original study (2005).
Patients who participate in the BPRP program are recruited largely through advertisements in the *Village Voice*. Some participants become involved with the program through hospital staff and former patient referrals. Criteria for exclusion from the program include psychosis, current or recent use of anti-psychotic medication, current or recent substance abuse or dependence, evidence of active or recent suicidal behavior, and a history of destructive or impulsive behavior. Individuals who are determined to have DSM-IV diagnoses of paranoid, schizoid, schizotypal, narcissistic, or borderline personality disorder are also excluded. Patients are also prohibited from engaging in concurrent psychotherapy treatment and must have at least one close personal relationship. Subjects ultimately sign an informed consent acknowledging their agreement to receive treatment in accordance with the parameters of the research program.

**Measures**

*Attachment Measure*

The Therapeutic Attachment Scale (TAS) is "an observer-rated measure that was developed to assess the narrative coherence and attachment organization of patients in the context of the therapeutic relationship" (Bowman, 2005). The measure adopts a definition of narrative coherence which is consistent with the sub-field of adult attachment theory. Given that narrative coherence has been shown to be a reliable predictor of adult attachment organization (Fonagy et al., 1996, 1998; Hesse, 1999; Main, 1991), the TAS largely relied on widely-accepted characterizations of narrative coherence as expressed in Mary Main’s AAI coding manual (Hesse, 1999), Roger

The TAS designates four subscales which characterize different attachment organizations: (1) Secure, (2) Dismissing, (3) Preoccupied, and (4) Unresolved. As is the case with the scales from which the TAS was derived, the emphasis in coding is placed on patients' manner of expressing their experiences rather than the content of their verbalizations. Six graduate students in clinical psychology from the BPRP used the TAS to code videotapes of PTRI patient interviews conducted by third-party interviewers. In the TAS coding manual that accompanies the scale, Bowman (2004) instructs raters to consider that “optimal coherence is a collaborative process” and that “in considering narrative coherence, ... emphasis should be placed on the degree to which the subject is able to respond to specific interview questions rather than merely describe his or her experience” (p. 2, italics included). This instruction illustrates the reliance on Grice's (1975) Cooperative Principle as a primary guiding principle for the TAS. As is the case with the PTRI, the TAS scoring system echoes the AAI's emphasis on the maxim of quality. Bowman instructs raters to particularly attend to the degree to which subjects support the initial five adjectives elicited to describe their relationship with their therapist (Bowman, 2004).

**Psychotherapy Process Measures**

After each psychotherapy session, both patient and therapist completed a Post-Session Questionnaire (Patient PSQ, Appendix F; Therapist PSQ, Appendix G). The PSQ contains multiple measures that assess the nature and strength of the therapeutic relationship. For the purposes of this study, the Working Alliance Inventory (WAI;
Horvath & Greenberg, 1989) embedded in the both the Patient and Therapist PSQ was utilized.

The WAI is an operationalized psychotherapy process measure based on Bordin's transtheoretical conception of the therapeutic alliance as consisting of goals, tasks, and the bond. The measure’s twelve items prompt respondents to provide ratings on a seven-point Likert scale ranging from one ("never") to seven ("always"). The WAI has well-established psychometric properties.

For the purposes of the current study, mean WAI ratings for patients and therapists at the beginning of treatment (sessions 1-6) and at the end of treatment (sessions 25-30) were obtained.

**Outcome Measures**

Patients and therapists completed overall outcome assessments at intake, mid-phase, and termination. The patient-rated outcome measures used in the current study were the Symptom Checklist-90-Revised (SCL-90R; Appendix H; Derogatis, 1982), the Patient Inventory of Interpersonal Problems-64 (IIP-64; Appendix J; Horowitz et al., 2000), and Patient Target Complaints (PTC; Appendix L; Battle et al., 1966). The therapist-rated outcome measures were the Global Assessment Scale (GAS; Appendix I; Endicott et al., 1976), the Therapist Inventory of Interpersonal Problems-32 (IIP-32; Appendix K; Horowitz et al., 1988), and Therapist Target Complaints (TTC; Appendix L; Battle et al., 1966).

The SCL-90R (Derogatis, 1982) is a 90-item self-report inventory developed to assess general psychiatric symptomatology. The scale assesses the severity of symptoms reported by adult psychiatric and medical patients. Patients rate their degree of distress on
a five-point Likert scale ranging from zero ("not at all") to four ("extremely"). The SCL-90R has well-established psychometric properties.

The GAS (Endicott et al., 1976) is a therapist-rated scale for evaluating overall mental health. The scale takes into account psychological, social, and occupational functioning. It involves a single rating on a continuum ranging from 1 (sickest) to 100 (healthiest). All therapists were trained following the authors’ protocol to reliable standards. The GAS has well-established psychometric properties.

The Therapist IIP-32 (Horowitz et al., 1988) is a 32-item therapist-rated inventory developed to assess patient social adjustment and interpersonal difficulties. Therapists are asked to respond to prompts such as "It is hard for the patient to do..." or "These things are things the patient does too much..." on a five-point Likert scale. The scale ranges from zero ("not at all") to four ("extremely"). The Therapist IIP-32 has well-established psychometric properties.

The Patient Inventory of Interpersonal Problems-64 (IIP-64; Horowitz et al., 2000) is a 64-item self-report inventory developed to assess patient social adjustment and interpersonal difficulties. The Patient IIP-64 has well-established psychometric properties.

Target Complaints (TC; Battle et al., 1966) is an idiographic self-report instrument developed to assess the particular patient presenting problems. Both therapists (TTC) and patients (PTC) independently rate the severity of the problems. Both Therapist and Patient Target Complaints have well-established psychometric properties.
For the purposes of the current study, residual gain scores were calculated for patient and therapist ratings at intake and termination for each of the measures described. The intent was to assess patient change over the course of treatment.

**Linguistic Cohesion Tool**

*Coh-Metrix 1.4* (Graesser et al., 2004; McNamara et al., 2005) was used to analyze patient interviews for linguistic properties including cohesion, word frequency, concreteness, syntax, and readability. Described above in detail, Coh-Metrix is an algorithmic-based program designed to assess the cohesion of written texts in order to measure and improve their readability. It links computational linguistics and psycholinguistics to analyze texts on 42 linguistic measures including referential cohesion, Latent Semantic Analysis (LSA), connectives, causal links, and the causal ratio. Coh-Metrix does not produce a single value which represents the overall cohesion of the text.

A concern in the pilot study (Francis, 2005) regarding Coh-Metrix’s validity in assessing dialogue in particular was the limited number of words found in many adjacency pairs (M. Louwserse, personal communication, 2005). Coh-Metrix is generally intended to analyze text with a minimum of approximately 500 words. This concern regarding volume of text has been addressed in the current study via the inclusion of an alternative method for inputting text into Coh-Metrix that will be discussed below.
Procedure

Participants were contacted approximately one month after completing their 30-session psychotherapy protocol and asked to participate in a semi-structured interview (P TRI) focused on their relationship with their therapist (Diamond et al., 2000). These interviews were conducted by trained BPRP research assistants. As explained in detail above, the P TRI explores the experience and mental representations of patients and therapists regarding the therapeutic relationship. This study uses only the patient version of the P TRI. The P TRI format parallels the AAI developed by George, Kaplan, & Main (1985) which is designed to engage subjects’ attachment system by “surprising the unconscious” (George et al., 1985) by asking subjects to describe their relationships with early caregivers. The P TRI attempts to achieve similar ends in the exploration of patients’ attachment to their therapist.

As stated above, cohesion analysis of the P TRI using Coh-Metrix in the pilot study (Francis, 2005) involved inputting and producing scores one adjacency pair at a time so that each interviewer utterance was paired with the ensuing patient utterance. The score generated for every adjacency pair in the interview was then averaged to produce a single score for each of the 42 measures. One of the most notable shortcomings of the adjacency pair approach was that the limited amount of text prohibited the use of measures which require a sufficient amount of text to establish validity (Francis, 2005). While no precise minimum is required for such measures, it can be assumed that the few words in several adjacency pairs do not meet criteria for a “sufficient volume of content” (Graesser et al., 2004, p. 200).
The current study will therefore input text into Coh-Metrix by grouping five adjacency pairs at a time as a unit of analysis. The method involved grouping adjacency pairs 1-5, then 2-6, then 3-7, and so forth. This method was recommended by one of the creators of Coh-Metrix as a useful way to enhance the validity of the results while continuing to capture local cohesion (M. Louwerse, personal communication, 2007). In order to produce final Coh-Metrix results in the current study, the score generated for every grouping of five adjacency pairs in the interview was then averaged to produce a single score for each of the 42 indices.

As discussed above, individual questions in the PTRI are often followed by a series of related questions which prompt the patient to more fully explain their initial response. By grouping five adjacency pairs at a time, it is argued that the premise of appreciating coordination on content as a shared process is maintained. In fact, at times it appears that grouping more of the relevant dialogue that pertains to a new line of questioning may more appropriately capture the construction of shared meaning. An example from the pilot study (Francis, 2005) involving two adjacency pairs provides a case in point:

Interviewer: ...Um, to what extent do you feel that this problem was resolved to your satisfaction?
Patient: The problem of me talking over her?
Interviewer: I guess so.
Patient: Well, I guess it was resolved because...

The patient's question to clarify the prompt in response to the interviewer's utterance is typical in spoken dialogue. However, this poses difficulties for the adjacency pair level of analysis because the interviewer's "I guess so" in direct response to the patient's question
is stripped of its meaning in the example above. This stems from the fact that an
isolated analysis of one adjacency pair necessarily considers the interviewer to be the
initiator of shared meaning. This premise is violated in the above example.

Transcriptions of PTRI patient interviews were uniformly modified for use with
Coh-Metrix. This entails removing written labels to identify speech turns such as
“Interviewer” and “Patient.” Instead, speech turns are marked by hard returns. No other
hard returns are used within a turn (M. Louwerse, 2005, personal communication).

Punctuation is also added when necessary to ensure that all transcripts follow
the same general grammatical principles. This uniform principle is based on the
assumption that a speaker’s utterance is not complete until they produce a complete
thought. The premise is that these partial thoughts impact the subsequent utterance of the
complete thought and should therefore be considered part of that sentence. The following
sentence from a transcript used in the pilot study (Francis, 2005) is representative: “Well,
like in the beginning, as I said, I mean his thing was, was that he, I wouldn’t allow him to
be present.” Though the patient begins speaking about her therapist in terms of the issue
being “his thing,” she self-corrected and completed the thought with, “I wouldn’t allow
him to be present.” This selection illustrates that the partial expression of thoughts are
marked by commas as are the repetition of words such as was, was. Indications of a pause
as exemplified by expressions such as um are also demarcated by commas. For example,
“So I, I think it was a very, um, I think there was a very nice rapport there.”

Statistical analysis involved using data generated by Bowman’s study (2005)
which produced attachment organization scores for each transcript on continuous
categories. The method for deriving the various process and outcome measures is
described above. A correlation was run between these attachment organization ratings, the process ratings, the outcome measures, and each of the 42 Coh-Metrix measures. A 2-tailed parametric correlation, the Pearson Correlation, was considered the most appropriate indicator of correspondence between the variables. A partial correlation controlling for the number of words did not significantly alter any of the findings reported.
Chapter IV

Results

For the sake of clarity, results will be reported in groupings based on attachment style, process measures, and outcome measures. As hypothesized, the Coh-Metrix results pertaining to these groupings primarily revolve around the overarching categories of concreteness and the incidence of causal verbs and particles. Coh-Metrix indices tangentially linked to those concepts will be presented along with the appropriate category. Based on their infrequency and subsequent instability as a cohesion index, negative temporal connective results will not be reported in this section.

Attachment Categories

Dismissing Category

Patients with a dismissing attachment style produced a negligible correlation to the incidence of causal verbs and particles. Those with a dismissive attachment style also generated a negligible correlation to the causal ratio. Patients with a dismissing attachment style produced a significant negative correlation ($r = -.456$, $p<.05$) to the incidence of positive additive connectives and a negligible correlation to the rest of the positive and negative connectives.

Those with a dismissive attachment style generated a moderate negative correlation ($r = -.442$) to the mean concreteness value for content words and a non-significant negative correlation ($r = -.330$) to the mean hypernym value for nouns. As the hypernym value increases, the word is increasingly concrete. Patients exhibiting a dismissive attachment style yielded a negligible correlation to the two other Coh-Metrix indices of concreteness. Additionally, dismissive patients produced a significant negative
correlation ($r = -.477, p < .05$) to the number of words. As stated above, a partial correlation controlling for the number of words did not significantly alter any of the findings reported.

**Preoccupied Category**

Those with preoccupied attachment, the other insecure attachment category analyzed, produced a negligible correlation to the incidence of causal verbs and particles. Preoccupied patients yielded a significant positive correlation ($r = .478, p < .05$) to the causal ratio. Those with preoccupied attachment generated a highly significant positive correlation ($r = .644, p < .01$) to the incidence of negative causal connectives. Individuals exhibiting a preoccupied attachment style produced a negligible correlation to the remaining positive and negative connectives.

Preoccupied patients generated a significant positive correlation ($r = .464, p < .05$) to the mean hypernym value of nouns. The preoccupied category yielded a non-significant correlation to the three other indices of concreteness.

**Secure Category**

The secure attachment category produced a negligible correlation to the incidence of causal verbs and particles and a non-significant positive correlation ($r = .292$) to the causal ratio. Those with secure attachment generated a non-significant positive correlation ($r = .342$) to the incidence of positive causal connectives and a negligible correlation to the other positive and negative connectives.

The secure category yielded a significant positive correlation ($r = .457, p < .05$) to the mean hypernym value of nouns. Those with secure attachment yielded a non-significant or negligible correlation to the three other indices of concreteness.
Table 1 below captures the most salient results provided above:

**Table 1: TAS-Generated Attachment Categories**

<table>
<thead>
<tr>
<th></th>
<th>Dismissing</th>
<th>Preoccupied</th>
<th>Secure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence of Causal Verbs and Particles per 1000 Words</td>
<td>.126</td>
<td>.067</td>
<td>.179</td>
</tr>
<tr>
<td>Mean Concreteness Value of all Content Words</td>
<td>-.442</td>
<td>-.289</td>
<td>.186</td>
</tr>
<tr>
<td>Mean Hypernym Value of Nouns</td>
<td>-.330</td>
<td>.464*</td>
<td>.457*</td>
</tr>
</tbody>
</table>

Pearson Correlation
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

**Process Measures**

**Patient Working Alliance Inventory (WAI)**

Those with a dismissing attachment style produced a negligible correlation to the initial patient WAI and to the end-stage patient WAI. The preoccupied category also bore a negligible correlation to both the initial patient WAI and the ending patient WAI. Those with a secure attachment style produced a non-significant negative correlation ($r = -0.310$) to the initial patient WAI and a significant negative correlation ($r = -0.475$, $p<.05$) to the end-stage patient WAI.

To turn to the relationship between the linguistic measures and the psychotherapeutic process measures, correlations to both the initial and end-stage patient WAI will now be more comprehensively addressed. The therapist WAI will then be analyzed in the same fashion.

The initial patient WAI exhibited a moderate negative correlation ($r = -0.364$) to the incidence of causal verbs and particles, and the end-stage patient WAI yielded a negligible correlation to this index. Similarly, the initial patient WAI generated a
moderate negative correlation ($r = -0.381$) to the causal ratio, and the end-stage patient WAI yielded a negligible correlation to the causal ratio. While the initial patient WAI produced a significant negative correlation ($r = -0.490$, $p<.05$) to the incidence of positive causal connectives, the ending patient WAI generated a negligible correlation to this index. Both the initial and end-stage WAI yielded a negligible correlation to the remaining positive and negative connectives.

The initial patient WAI exhibited a significant negative correlation ($r = -0.504$, $p<.05$) to the mean hyponym value of nouns. The end-stage patient WAI bore a non-significant negative correlation ($r = -0.349$) to this index. Both the initial patient WAI and the end-stage patient WAI yielded a non-significant correlation to the three remaining indices of concreteness.

Given the importance of the initial patient WAI in psychotherapy process research (Horvath & Bedi, 2002), the following table illustrates its relation to the attachment categories and key Coh-Metrix indices:
Table 2: Process Measure - Initial Patient WAI

<table>
<thead>
<tr>
<th>Dismissing Category</th>
<th>Initial Patient WAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoccupied Category</td>
<td>-0.133</td>
</tr>
<tr>
<td>Secure Category</td>
<td>-0.310</td>
</tr>
<tr>
<td>Incidence of Causal Verbs and Particles</td>
<td>-0.364</td>
</tr>
<tr>
<td>Mean Hypernym Value of Nouns</td>
<td>-0.504*</td>
</tr>
</tbody>
</table>

Pearson Correlation
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

**Therapist Working Alliance Inventory (WAI)**

Those with a dismissing attachment style produced a non-significant positive correlation (r = .246) to the initial therapist WAI. The dismissing attachment style exhibited a negligible correlation to the end-stage therapist WAI. Those with preoccupied attachment bore a significant negative correlation (r = -0.541, p<.05) to the initial therapist WAI. The preoccupied category produced a moderate negative correlation (r = -0.360) to the ending therapist WAI. The secure category yielded a negligible correlation to both the initial therapist WAI and the end-stage therapist WAI.

The discussion will now shift to examining the relationship between the Coh-Metrix indices and therapists’ perspective on the therapeutic alliance. Both the initial and end-stage therapist WAI produced a negligible correlation to the incidence of causal verbs and particles. The initial and ending therapist WAI also yielded a negligible correlation to the causal ratio. Both the initial and end-stage therapist WAI generated a negligible correlation to the positive and negative connectives as well.

The initial therapist WAI yielded a moderate negative correlation (r = -0.406) to the mean hypernym value of nouns. The ending therapist WAI produced a non-
significant negative correlation \( r = -0.321 \) to this index. Both the initial and ending therapist WAI generated a negligible correlation to the three other indices of concreteness.

**Outcome Measures**

Each outcome measure will first be analyzed for relationships to TAS-generated attachment categories followed by the relationships to process measures and Coh-Metrix indices.

**Therapist Outcome Measures**

*Global Assessment Inventory (GAS)*

An increasing residual gain score on the GAS indicates psychotherapeutic improvement. The GAS yielded a non-significant negative correlation \( r = -0.251 \) to the dismissing category. The GAS produced a negligible correlation to both the preoccupied and secure category.

The GAS exhibited a significant negative correlation \( r = -0.566, p<0.05 \) to the initial patient WAI and a negligible correlation to the end-stage patient WAI. The GAS yielded a negligible correlation to both the initial therapist WAI and the end-stage therapist WAI.

The GAS produced a negligible correlation to the incidence of causal verbs and particles. The GAS also generated a negligible correlation to the causal ratio as well as to both the positive and negative connectives.

The GAS yielded a moderate positive correlation \( r = 0.370 \) to the mean concreteness for content words and a non-significant positive correlation \( r = 0.346 \) to the
mean hypernym value of nouns. The GAS produced a negligible correlation to the other two indices of concreteness.

**Therapist Inventory of Interpersonal Problems-32 (IIP-32)**

A decreasing score on residual gain on the Therapist IIP-32 indicates psychotherapeutic improvement. The Therapist IIP-32 yielded a non-significant positive correlation ($r = .334$) to the dismissing attachment category and a negligible correlation to the preoccupied category. Although not significant at the .05 level, the Therapist IIP-32 generated a moderate negative correlation ($r = -.407$) to the secure attachment category.

The Therapist IIP-32 produced a negligible correlation to the initial and ending patient WAI. The Therapist IIP-32 also bore a negligible correlation to both the initial therapist WAI and the end-stage therapist WAI.

The Therapist IIP-32 yielded a negligible correlation to the incidence of causal verbs and particles. The Therapist IIP-32 also produced a negligible correlation to the causal ratio as well as to both the positive and negative connectives.

Though not significant at the .05 level, the Therapist IIP-32 generated a moderate negative correlation ($r = -.373$) to the mean concreteness for content words and a moderate negative correlation ($r = -.386$) to the mean hypernym value of verbs. The Therapist IIP-32 produced a negligible correlation to the other two indices of concreteness.

**Therapist Target Complaints**

A decreasing score on residual gain on the Therapist Target Complaints indicates psychotherapeutic improvement. The Therapist Target Complaints yielded a negligible correlation to all three attachment categories.
The Therapist Target Complaints produced a negligible correlation to the initial patient WAI and the end-stage patient WAI. The Therapist Target Complaints yielded a negligible correlation to the initial therapist WAI and the end-stage therapist WAI.

The Therapist Target Complaints produced a moderate positive correlation ($r = .381$) to the incidence of causal verbs and particles. The Therapist Target Complaints bore a negligible correlation to the causal ratio and to the positive and negative connectives. The Therapist Target Complaints yielded a negligible correlation to all four indices of concreteness.

The following tables illustrate the relationship between therapist outcome measures and several key concepts:

**Table 3: Attachment Categories, Initial Patient WAI, and Therapist Outcome Measures**

<table>
<thead>
<tr>
<th>Category</th>
<th>GAS</th>
<th>Therapist IIP-32</th>
<th>Therapist Target Complaints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dismissing</td>
<td>-.251</td>
<td>.334</td>
<td>.065</td>
</tr>
<tr>
<td>Preoccupied</td>
<td>-.091</td>
<td>.213</td>
<td>-.074</td>
</tr>
<tr>
<td>Secure</td>
<td>-.049</td>
<td>-.407</td>
<td>-.169</td>
</tr>
<tr>
<td>Initial Patient WAI</td>
<td>-.566*</td>
<td>.190</td>
<td>.249</td>
</tr>
</tbody>
</table>

Pearson Correlation

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
Table 4: Coh-Metrix Indices and Therapist Outcome Measures

<table>
<thead>
<tr>
<th></th>
<th>GAS</th>
<th>Therapist IIP-32</th>
<th>Therapist Target Complaints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence of Causal Verbs and Particles</td>
<td>.164</td>
<td>-.107</td>
<td>.381</td>
</tr>
<tr>
<td>Mean Concreteness Value of all Content Words</td>
<td>.370</td>
<td>-.373</td>
<td>-.036</td>
</tr>
<tr>
<td>Mean Hypernym Value of Verbs</td>
<td>.187</td>
<td>-.386</td>
<td>-.111</td>
</tr>
</tbody>
</table>

Pearson Correlation
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Patient Outcome Measures

Symptom Checklist-90-Revised (SCL-90R)

A decreasing score on residual gain on the SCL-90R indicates psychotherapeutic improvement. The SCL-90R yielded a negligible correlation to the dismissing, preoccupied, and secure attachment category.

The SCL-90R bore a non-significant positive correlation (r = .324) to the initial patient WAI and a negligible correlation to the ending patient WAI. The SCL-90R generated a negligible correlation to both the initial therapist WAI and the end-stage therapist WAI.

The SCL-90R produced a moderate negative correlation (r = -.387) to the incidence of causal verbs and particles. The SCL-90R also generated a moderate negative correlation (r = -.388) to the causal ratio. The SCL-90R yielded a non-significant negative correlation (r = -.334) to the incidence of positive causal connectives and a negligible correlation to the remaining positive and negative connectives.
The SCL-90R yielded a moderate positive correlation ($r = .415$) to the mean of the words with the lowest-concreteness in each sentence in the text. The SCL-90R bore a negligible correlation to the other three indices of concreteness.

**Patient Inventory of Interpersonal Problems-64 (IIP-64)**

A decreasing score on residual gain on the Patient IIP-64 indicates psychotherapeutic improvement. The Patient IIP-64 yielded a negligible correlation to all three attachment categories.

The Patient IIP-64 produced a non-significant positive correlation ($r = .318$) to the initial patient WAI and a negligible correlation to the ending patient WAI. The Patient IIP-64 bore a non-significant positive correlation ($r = .328$) to the initial therapist WAI and a negligible correlation to the end-stage therapist WAI.

The Patient IIP-64 yielded a significant negative correlation ($r = -.481$, $p<.05$) to the incidence of causal verbs and particles. The Patient IIP-64 produced a negligible correlation to the causal ratio. The Patient IIP-64 generated a non-significant negative correlation ($r = -.292$) to the incidence of positive causal connectives and a negligible correlation to the remaining positive and negative connectives.

The Patient IIP-64 produced a significant positive correlation ($r = .493$, $p<.05$) to the mean of the words with the lowest-concreteness in each sentence in the text. The Patient IIP-64 generated a non-significant negative correlation ($r = -.307$) to the mean hypernym value of nouns and a negligible correlation to the other two indices of concreteness.
Patient Target Complaints

A decreasing score on residual gain on the Patient Target Complaints indicates psychotherapeutic improvement. The Patient Target Complaints bore a negligible correlation to all three attachment categories.

The Patient Target Complaints produced a negligible correlation to the initial patient WAI and a non-significant negative correlation ($r = -.303$) to the ending patient WAI. The Patient Target Complaints yielded a negligible correlation to the initial therapist WAI and the end-stage therapist WAI.

Though not significant at the .05 level, the Patient Target Complaints generated a moderate negative correlation ($r = -.376$) to the incidence of causal verbs and particles. The Patient Target Complaints resulted in a moderate negative correlation ($r = -.392$) to the causal ratio as well. The Patient Target Complaints yielded a moderate negative correlation ($r = -.404$) to the incidence of positive causal connectives and a negligible correlation to the rest of the positive and negative connectives.

Though not significant at the .05 level, the Patient Target Complaints yielded a moderate positive correlation ($r = .399$) to the mean of the words with the lowest-concreteness in each sentence in the text. The Patient Target Complaints produced a non-significant negative correlation ($r = -.317$) to the mean hypernym value of nouns and a negligible correlation to the other two indices of concreteness.

Given the importance of patient-rated outcome measures in psychotherapy research, the following tables will distill some of the most relevant results presented:
Table 5: Attachment Categories, Initial Patient WAI, and Patient Outcome Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>SCL-90R</th>
<th>Patient IIP-64</th>
<th>Patient Target Complaints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dismissing Category</td>
<td>-.154</td>
<td>-.156</td>
<td>.067</td>
</tr>
<tr>
<td>Preoccupied Category</td>
<td>.135</td>
<td>-.050</td>
<td>.010</td>
</tr>
<tr>
<td>Secure Category</td>
<td>.027</td>
<td>-.123</td>
<td>-.184</td>
</tr>
<tr>
<td>Initial Patient WAI</td>
<td>.324</td>
<td>.318</td>
<td>.232</td>
</tr>
</tbody>
</table>

Pearson Correlation
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 6: Coh-Metrix Indices and Patient Outcome Measures

<table>
<thead>
<tr>
<th>Index</th>
<th>SCL-90R</th>
<th>Patient IIP-64</th>
<th>Patient Target Complaints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence of Causal Verbs and Particles</td>
<td>-.387</td>
<td>-.481*</td>
<td>-.376</td>
</tr>
<tr>
<td>Mean of Lowest-Concreteness Word for Each Sentence</td>
<td>.415</td>
<td>.493*</td>
<td>.399</td>
</tr>
</tbody>
</table>

Pearson Correlation
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
Chapter V

Discussion

This discussion will outline the promising results generated by this study. Multiple hypotheses were supported. Those that were not supported appear to advance the understanding of psychotherapy process and outcome. The following analysis will therefore be based on the assumption that one of the primary hypotheses of this study was well-supported. That is, cohesion and linguistic coherence appear to provide a viable alternative perspective for elucidating the mechanisms by which the therapeutic alliance contributes to psychotherapy outcome.

The fundamental hypothesis that good psychotherapy outcome would be significantly correlated to the cluster of concreteness and the incidence of causal verbs and particles was well-supported. The incidence of causal verbs and particles exhibited a significant negative correlation to residual gain on the Patient IIP-64. Furthermore, the incidence of causal verbs and particles yielded a moderate negative correlation to the SCL-90R and the Patient Target Complaints. The fact that all three patient outcome measures produced results indicating a moderate or significant correlation between the incidence of causal verbs and particles and good psychotherapy outcome is critically important. Patient-rated outcome measures are typically deemed superior to therapist-rated outcome measures.

The other fundamental element of the clustering hypothesis, concreteness, also produced promising results. The mean of the lowest-concreteness word for each sentence generated a significant positive correlation to the Patient IIP-64. This same concreteness index produced a moderate positive correlation to both the SCL-90R and the Patient
Target Complaints. In other words, for all three patient outcome measures a high incidence of abstract language in combination with a high incidence of causal cohesion produced good psychotherapy outcome. This supportive evidence for the importance of abstract language in psychotherapy outcome seemingly opens the door for future researchers to study the connection between reflective functioning and concreteness more directly. The difficulty with operationalizing concepts in psychotherapy research makes this possibility particularly appealing.

The therapist-rated outcome measures did not produce the hypothesized clustering of low concreteness and a high incidence of causal verbs and particles. Both the GAS and the Therapist IIP-32 yielded a negligible correlation to the incidence of causal verbs and particles. Contrary to expectations, the Therapist Target Complaint produced a moderate positive correlation to this index. This counterintuitive finding suggests that as the critical cohesive device of utilizing causal verbs and particles increases, psychotherapy outcome becomes poorer. While this could be explained in terms of the unique demands of spoken discourse and the above discussion regarding common ground, it appears circumspect given that the other two therapist-rated measures exhibit no such trend. The consistent support for the centrality of using causal verbs and particles from the patient-rated perspective casts further doubt on this explanation.

The therapist-rated outcome measures also produced curious results in terms of concreteness. Though no significant findings emerged, both the GAS and the Therapist IIP-32 produced moderate correlations between increased concrete language and better psychotherapy outcome. Given that both measures produced a negligible correlation to the incidence of causal verbs and particles, the finding is difficult to interpret. It would
seem to run counter to the psychotherapy literature on reflective functioning. However, the psycholinguistic literature does promote a fairly well-supported connection between cohesion and concreteness in other settings. An in-depth exploration of this phenomenon is beyond the scope of this paper, but the erratic findings of the therapist-rated outcome measures lend some support to the idea that the validity of these therapist outcome measures may require closer inspection.

To turn to a direct analysis of the relationship between the therapeutic alliance and psychotherapy outcome, the study sample immediately challenged the traditional understanding of the expected correlation. An array of evidence has established that the initial patient WAI rating is the most robust indicator of psychotherapeutic outcome (Horvath & Bedi, 2002; Martin, Garske, & Davis, 2000). The initial patient WAI rating generally tends to produce a positive correlation to good outcome and a negative correlation to poor outcome. Yet, the initial patient WAI rating in this sample produces a significant negative correlation to the GAS. The initial patient WAI also generated a non-significant positive correlation to both the SCL-90R and the Patient IIP-64. Simply put, the initial patient WAI rating produced results suggesting negative correlations to good outcome and positive correlations to poor outcome. Cohesion analysis of the initial patient WAI suggests why this is so.

The initial patient WAI produced a moderate negative correlation to the incidence of causal verbs and particles. The initial patient WAI rating generated a significant negative correlation to the mean hypernym value of nouns. From the linguistic perspective adopted in this study, this initial patient WAI grouping would likely produce the moderately poor outcome that they indeed generated. This group consisted of
individuals who lacked a crucial cohesion device – significant use of causal verbs and particles. The absence of the hypothesized fundamental cohesive device (i.e., a high incidence of causal verbs and particles) suggests that this is a group of patients who express themselves abstractly without sufficiently meaningful interaction between concepts. The following example (Francis, 2005) depicts this combination:

Interviewer: Okay. And how did you feel about her?
Patient: Oh, I genuinely liked her. I mean, she was, it was good. I learned a lot from her. And, um, no, I, I was very like, I never thought I’d be in therapy. So it was kind of, you know, I wasn’t resistant to the point where I decided that, probably at an emotional low I decided that I might as well try it because a friend had suggested it. But it wasn’t something that I would have ever thought that I would do. But I think having her as somebody, you know, not confrontational, which is a good thing, is a very good thing for me.

Some experts in the field (M. Louwerse, personal communication, 2007) argue that the incidence of causal connectives in particular may be as important as the incidence of causal verbs and particles. Given this stance, it is notable that the initial patient WAI yielded a significant negative correlation to the incidence of positive causal connectives. In the same vein, one of the patient-rated outcome measures (Patient Target Complaints) generated a moderate negative correlation to the incidence of positive causal connectives while the other two (SCL-90R and Patient IIP-64) produced a non-significant negative correlation to this index. It appears that good psychotherapy outcome from a patient perspective tends to correlate with an increased usage of positive causal connectives.

To turn to the analysis of results in relation to attachment categories, the hypothesis that the TAS-generated secure attachment category would yield a high incidence of causal verbs and particles along with low concreteness was not supported. In fact, the secure category produced a negligible correlation to the incidence of causal verbs and particles and a significant positive correlation to the mean hyponym value of
nouns. In other words, those in the secure category used little causal language to link concepts in a meaningful way while employing a large amount of concrete language. Though this finding was surprising, the accompanying finding that the TAS-generated secure category produced a negligible correlation to all three patient-rated outcome measures and two of the therapist-rated outcome measures shed light on the situation. The fact that the TAS-generated secure category was only linked to good outcome by the moderate correlation to the Therapist IIP-32 suggests that the TAS may need further validation to ensure that it appropriately captures secure attachment. This is to be expected given that the TAS is a newly-created measure. The limited evidence that the TAS-generated secure category is linked to good psychotherapy outcome seems to temper the concern about the current study’s failure to show that the relevant psycholinguistic measures are present in the secure category.

As hypothesized, the current study’s altered methodology led to a robust picture of the TAS’s dismissing category. The dismissing category produced the hypothesized significant negative correlation to the number of words in the text. The dismissing category also generated the hypothesized negligible correlation to the incidence of causal verbs and particles. Though it was hypothesized that dismissing patients would exhibit a significant positive correlation to concreteness, dismissing patients actually produced a moderate negative correlation to two different concreteness measures (mean concreteness value of all content words in the text and mean hypernym value of nouns). Though dismissing patients spoke less, they used more abstract language. Again, this finding is not problematic based on the current study’s contention regarding the link between abstract language and reflective functioning. The link hinges on utilizing the fundamental
cohesive device (the incidence of causal verbs and particles) to make effective use of increased abstract language. Reflective functioning is not simply abstract language in isolation. Rather, it is abstract language connected in a meaningful way.

Somewhat contrary to the original hypothesis, dismissing patients exhibited a negligible correlation to the initial patient WAI rating rather than a significant negative correlation. Perhaps the dismissive attachment style manifests itself by ambivalence rather than a consciously negative impression of the new therapeutic relationship.

Analysis of the TAS-generated preoccupied category yielded mixed results. In contrast to the hypothesis that the preoccupied category would produce a significant negative correlation to the incidence of causal verbs and particles, it instead generated a negligible correlation to this index. The preoccupied category did generate the hypothesized significant positive correlation to concreteness (mean hypernym value of nouns). As hypothesized, the fractured, lengthy speech of preoccupied patients produced a significant positive correlation to the incidence of negative causal connectives.

The preoccupied category’s negligible correlation to the incidence of causal verbs and particles combined with a high use of concrete language provides supporting evidence as to why the high use of negative connectives would decrease cohesion. As discussed above, it appears particularly relevant in this case to consider Gernsbacher’s theory (1990, 1984, 1985) regarding the potential for negative connectives to strain listeners’ working memory. These preoccupied patients appear to lack the ability to regularly use causal verbs and particles to connect language in a meaningful way. Furthermore, it appears that they use an insufficient amount of abstract language to optimally benefit from psychotherapy. The use of negative connectives in this case would
understandably lead to decreased cohesion and coherence. As previously argued (Francis, 2005), preoccupied patients use counterproductive methods when trying to facilitate coherence. The hypothesis that these preoccupied patients would generate a negligible correlation to the incidence of positive connectives was also supported.

The results generated limited support for the initial hypothesis regarding the preoccupied category’s relationship to the initial alliance. Though it was hypothesized that the preoccupied category would generate a significant negative correlation to the initial patient WAI, it bore a negligible correlation to the initial patient WAI. Though the impact of the linguistic behaviors that contributed to decreased cohesion may not have been as powerful as expected, the general findings are in accord with the contention that the alliance suffered from the lack of cohesive speech from those in the preoccupied category.

Contrary to the hypothesis that the preoccupied category would yield significant negative correlations to good outcome, it yielded negligible correlations to all patient and therapist outcome measures. Again, the outcome may have suffered less severely than expected, but the results align with the overall hypothesis regarding the adverse impact of overly concrete language that employs few devices to support causal cohesion.

The fairly well-supported hypotheses and intriguing questions raised by the current study must be contrasted with the study’s several limitations. The small sample size (N = 20) is a central concern. While generalizability is problematic, the inability to run a factor analysis to produce statistical support for significant clusters is particularly damaging. The central premise of the study is that the fundamental element of a high incidence of causal verbs and particles combined with significantly abstract speech
produces good psychotherapy outcome. In future research exploring this hypothesis, it would be crucial to increase the sample size so that this premise could be appropriately tested. As a general observation in the current study, the premise appeared to be more effective for predicting good versus bad outcome rather than the magnitude of that outcome.

As alluded to above, the unknown relationship between the four concreteness measures is another cause for concern. Though it is known that none of the concreteness measures are significantly correlated to one another, it is unclear as to their exact relationship. A more thorough understanding of the contributions of each measure would be needed before making firm conclusions about concreteness as an overarching entity.

A concern related to sample size is the use of correlations throughout the study. While the inability to argue causality is limiting, Crits-Christoph and colleagues’ (2006) criticisms about possible reverse causation and the influence of third variables certainly are relevant to this study.

The unproven validity of Coh-Metrix for assessing the spoken word is another primary concern. As discussed in detail above, multiple factors suggest that informal spoken dialogue possesses unique characteristics that are not found in written text. The unknown impact on cohesion requires further investigation.

A related problem is the current study’s lack of a thoroughly validated standard for transcribing and editing text. Variance in transcripts is particularly important when using a tool based on textual analysis such as Coh-Metrix. Though uniform methods were applied in the current study, the specificity of linguistic analysis requires a more stringent standard.
Further research is necessary to evaluate the suggestion that the cluster of a high incidence of causal verbs and particles and low concreteness may translate into the linguistic equivalent of reflective functioning. While it may have been established above that the challenging nature of the PTRI necessitates that this combination is not merely intellectualization, it does not follow that it is necessarily reflective functioning. Perhaps the most definitive suggestion for future research arising from the current study is the direct comparison of this cluster to Fonagy and colleagues’ Reflective Functioning (RF) scale (Fonagy et al., 1991; Fonagy et al., 1994). If reflective functioning significantly overlaps with the cluster of concreteness and the incidence of causal verbs and particles, perhaps a more fine-grained conception of reflective functioning will emerge. This endeavor may further the identified goal of Fonagy and others to determine whether reflective functioning is a causal mechanism in coherence.

Another area of fruitful research would be to compare the cohesion results obtained in this study with a more thoroughly tested attachment scale. This may yield intriguing correlations not currently evident. The questionable composition of the TAS-generated secure category in particular made it difficult to make firm conclusions regarding the overlap between attachment theory’s definition of coherence and linguistic theory’s definition.

Perhaps one solution to the correlation-based statistical problem would be to use cohesion analysis to assess psychotherapy process in real time in a study such as Muran, Safran, Samstag, and Winston’s (2005). Their study offers different interventions to clients based on their success in the early stages of therapy. Cohesion analysis could be incorporated into such an experimental design to assess whether it would add value in
determining the most suitable client interventions. In so doing, the causal properties of cohesion may be more thoroughly understood.

While this study may leave us with more questions than answers, the central premise produced fairly convincing hypothesized correlations to both process and outcome measures. Notably, the hypothesis that a high incidence of causal verbs and particles and low concreteness would cluster to produce good outcome was never directly refuted by the results. Even the outcome data that exhibited moderate correlations in an unexpected direction seemed to be legitimately called into doubt based on cross-reference to other outcome measures.

Perhaps more than anything, this study leaves us with seemingly strong evidence that the linguistic concept of cohesion is a useful, theoretically-driven tool for better understanding psychotherapeutic process and outcome. It is important to remember that while cohesion is a textual construct, it is a relational concept that involves linking items together through textual features that denote relations in meaning. While cohesion has been largely defined by identifying the incidence of causal verbs and particles in this study, it is the relation that these items suggest rather than their mere presence that is pivotal (Halliday & Hasan, 1976). The very concept of cohesion is relational in that cohesive speech tends to facilitate coherence, which exists in the mind of the listener. Linguistic coherence exists only as a psychological construct for the narrative’s reader who perceives the text as coherent if its components are linked in a meaningful and rational way (Graesser et al., 2004).

There is a well-established link between coherence and attachment. When considering the firm foundation for using attachment to better understand the therapeutic
alliance, cohesion's role in understanding these relationships appears well-supported. Importantly, this establishes a solid theoretical foundation for using cohesion to enhance our understanding of psychotherapy process and outcome. There are many who argue that the exploration of the therapeutic alliance necessitates such theory-driven methodology. It seems that assessing linguistic cohesion via Coh-Metrix represents a viable alternative for accomplishing this end. In the future, it would be particularly fruitful for the fields of psychotherapy research and psycholinguistics to continue to work toward a more firmly rooted scientific understanding of the mechanisms that produce improved psychotherapeutic process and outcome.
References


Appendix A: The Therapeutic Attachment Scale (TAS)
### The Therapeutic Attachment Scale

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The table contains items and their corresponding evidence levels from 0 to 4. Each item is described below:

1. Too much information
2. Demonstrates understanding of representational diversity
3. Succinct yet complete
4. Indecisive, confused, or conflicted
5. Contemptuous, minimizes, or devalues relationships
6. Relevant
7. Irrelevant information
8. Incomplete, abstract, or vague
9. Normalizes experience or provides positive wrap-up
10. Loses track of question or demonstrates an inability to focus
11. Acknowledges mental states in self and/or other
12. Demonstrates difficulty in recalling attachment related events
13. Fractured/unfinished or difficult to understand run-on sentences
14. Credible or easy to believe
15. Cool, aloof, or detached
16. Stereotyped responses
17. Intrusions into speech which interrupts the flow of ideas
18. Unmarked quotations, pronoun confusion, slips of the or tongue
19. Unresolved with respect to trauma or loss
20. Demonstrates an inability to reason
21. Demonstrates awareness of the limitation of mental states
22. Presents self as invulnerable or unaffected
23. Links mental states with motivations and/or behaviors
Appendix B: Subscales of the Therapeutic Attachment Scale
Subscales of the TAS

**Integrative-Collaborative (Secure)**
Demonstrates understanding of representational diversity
Succinct yet complete
Relevant
Acknowledges mental states in self and/or other
Credible or easy to believe
Demonstrates awareness of the limitation of mental states
Links mental states with motivations and/or behaviors

**Defensive-Exclusion (Dismissing)**
Contemptuous, minimizes, or devalues relationships
Incomplete, abstract, or vague
Normalizes experience or provides positive wrap-up
Demonstrates difficulty in recalling attachment related events
Cool, aloof, or detached
Stereotyped responses
Presents self as invulnerable or unaffected

**Defensive Over-Inclusion (Preoccupied)**
Irrelevant information
Indecisive, confused, or conflicted
Too much information
Loses track of question or demonstrates an inability to focus
Fractured/unfinished or difficult to understand run-on sentences
Intrusions into speech which interrupts the flow of ideas
Unmarked quotations, pronoun confusion, slips of the or tongue

**Unresolved**
Unresolved with respect to trauma or loss
Demonstrates an inability to reason
Appendix C: Therapeutic Attachment Scale Coding Manual
Therapeutic Attachment Scale

Coding Manual

This manual was created to instruct coders in the application of items from the Therapeutic Attachment Scale (TAS). The TAS was created to assess narrative coherence, consistent with adult attachment organization, of subjects responding to the Patient Therapist Relationship Interview (P TRI) (Diamond, et. al., 2000) and other interviews that address important attachment relationships. Diamond developed the P TRI to elicit a subject's attachment system in the context of therapeutic relationships. The P TRI asks subjects to provide a description of their relationship with their therapist, adjectives that characterize this relationship, and episodic memories to support their characterizations. The P TRI is an adaptation of the Adult Attachment Interview (AAI) developed my Carol George and Mary Main and colleagues (George, Main, et al 1985) which was developed to assess attachment organization in adults. Main argues that the AAI activates the attachment system and "surprises the unconscious" thus providing access to the intrapsychic and interpersonal nature of attachment organization in adults. Subjects' responses can be understood in terms of the manner in which they describe their experience as opposed to the content they express. The focus of this interview is to determine how information about important attachment relationships is structured, organized, and stored. Consequently, it assesses current "states-of-mind" that reflect the operation of deeper, more unconscious patterns of personality organization with respect to attachment.

Main argues that the two best predictors of attachment in adults include the plausibility of subjects' responses and the coherence of narratives provided in response to interview questions. Coherence is defined as a unified, yet free flowing narrative of a subject's experience (Main, 1991). This includes an ability to point to the principles and the
rationales behind responses, to explore responses spontaneously, and to be consistent in thoughts and feelings. The fundamental components of coherence are outlined by Grice's Maxims (i.e., quality, quantity, relation, and manner). These maxims are proposed as universal principles that provide a framework for optimal communication. Grice argues that optimal collaborative communication is achieved through adherence to the maxims he proposed.

The TAS is an observer-rated measure composed of 23 items that attempt to capture narrative coherence in the context of psychotherapy relationships. This manual provides instructions and definitions for coders in applying the items from the TAS. Ratings and scores on this scale do not represent a subject's attachment classification per se, rather, narrative styles consistent with attachment categories.

Instructions:
1. Coders should have a good working knowledge of attachment classifications (i.e., secure, dismissing, preoccupied, and disorganized).
2. Coders should be familiar with attachment interviews (AAI and PTRI). This includes experience in administering interviews as well as a theoretical understanding of the objectives and nature of the information gathered.
3. In coding PTRI interviews, raters should render scores that provide subjects with the benefit of the doubt yet, concurrently, capture violations. For example, subjects often take some time to adjust to the nature of questions posed. Raters should allow for subjects to adjust to and understand the task before rendering strong incoherence scores.
4. In making ratings for any item, note that an active presence of a violation should be rated higher than a passive presence. As such, if you find that you are inferring or unsure of how to rate violations, chances are that it should receive a lower score. Also consider that ratings should be based on what a subject presents as opposed to the rater's interpretation or inference.

5. In the context of narrative coherence violations, lower scores should be given to any subject who acknowledges maxim violations. Recognition and acknowledgement of maxim violations represents reflectiveness and awareness about the process of communicating which should be captured in ratings.

6. To begin coding, coders should listen to the first question of the interview. This question asks subjects to orient the interviewer, in a general way, to the relationship being described. Coders should make notes to themselves about initial observations regarding the discourse style of the interviewee.

7. Rater should then proceed to the adjective section of the interview. Listen carefully to each question posed by the interviewer and the ability of the interviewee to provide adjectives that describe their relationship with their therapist. Consideration should be given to subjects who begin by describing the person they are asked about but then are able to think about and articulate aspects of the relationship.

8. The interviewer will ask the subject to provide episodic memories to support the adjectives provided.

9. Rater should listen to the interviewee's entire response. In listening to the subject's response, raters should consider the following:
- *How* (e.g., the manner) does the subject respond to the interviewer's question?

- *Optimal coherence is a collaborative process;* therefore, consider whether the subject's response addresses the interview query. While a subject may offer information that is personally relevant, in considering narrative coherence, the emphasis should be placed on the degree to which the subject is able to respond to specific interview questions rather than merely describe his or her experience.

- Is the subject's response easy to understand?

- Does the subject appear to have a strategy for describing attachment related experiences (i.e., diminishes, sarcastic, comfortable, confused, overwhelmed, dismissing etc.)?

- Consider the degree to which the subject verifies the adjective provided. For example, should a subject provide positive adjectives, coders should take care to rate the degree to which the subject supports the adjective as opposed to the subject's positive characterization.

10. Once the coder listens to the entire response (to provide support for the adjective provided), raters should consider each item on the narrative coherence checklist and consider whether or not it applies to the response.

11. Raters should place a checkmarks next to any item that applies the subject's response. Raters should use a check minus, a check, and a check plus to address both intensity and frequency of each TAS item.

12. Raters should then continue on to the next question posed by the interviewer and follow the procedure described above.
13. It is expected that some items will be rated less frequently or be rated with less intensity. For example, severe forms of incoherence (i.e., lapses in monitoring of reasoning) may not be exhibited as frequently in the patient population of the Brief Psychotherapy Research Program. Despite this fact, raters should consider the full range of items for each subject.

14. Once all the adjectives and supporting memories have been provided, coders should determine overall rating for each item. Overall ratings are made on a 4-point likert scale; 0 (no evidence) 1 (a little evidence) 2 (moderate evidence) 3 (marked evidence) to 4 (substantial evidence). Coders should refer to the manual for specific instructions in making overall ratings for each item.
Item Definitions

1. **Too much information.** The subject may become discursive and elaborative and provide significantly more detail than the interview query may require. The observer may feel as though the speaker is in a monologue or is more intent on making a case than providing the information the interviewer requests.

   In making the overall rating emphasis should be placed on how often or the frequency of verbose, rambling responses.

2. **Demonstrates an understanding of representational diversity.** The subject demonstrates an awareness that there may be multiple interpretations or perspectives regarding the same event. For example, “My therapist was always talking about our ‘relationship’ rather than focusing on the issues that I felt were important in my life. Now I see that he wanted me to become aware of how some of the larger issues in my life may have played a role in our interactions.”

   In making an overall rating, any clear indication of the awareness of the diversity of mental states should receive a high overall rating (3 or 4). Vague or confused indications should receive lower scores (1 or 2) and no awareness of representational diversity should receive a zero.

3. **Succinct yet complete.** The subject provides enough information to be understood and is collaborative in responding to the interview question. As such, responses that are either verbose or incomplete violate this maxim. Coders should consider whether the subject provides enough information to render an easily interpreted account of the subject’s experience. Raters should consider whether the subject requires repeated inquiries or whether subject offers a lengthy monologues. This item addresses Grice’s quantity maxim and is a general indices of a coherent narrative.
In making the overall rating consider the number of checkmarks but ultimately assign a value based on an overall, general perception of the subject's responses.

4. **Indecisive, confused, or conflicted.** The subject appears confused or has difficulty making up his or her mind in describing attachment experiences. The rater may feel as though the subject has difficulty articulating a single point of view. For example, "You know, it's hard to say, when my therapist is supportive I feel good, but it is confusing because, you know, I want to feel supported but then I doubt that he really means it."

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

5. **Contemptuous, minimizes, or devalues relationships.** Responses may diminish the impact or importance of attachment experiences which may take several forms. First, contemptuous responses may be observed in sarcastic humor or mocking of important attachment relationships/experiences. Minimizing may be evident in a subject who appears to minimize his or her affective response to close relationships and the impact they may have had. Finally, a subject may devalue relationships by criticism and/or cynicism. In general, the rater may get the sense that the subject is indifferent to attachment relationships and appears to limit any affective response. Sarcasm and cynicism are rated here. Making fun of emotional responses to attachment experiences is rated here. An example might be, "Over time I became convinced that my therapist's only concern for me was for her own training, I was just a research subject. As for me, you know, the whole thing was short term, so it didn't really matter."
In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

6. **Relevant.** The subject provides information relevant to the interview query in a manner that is clearly understood. For this item, raters should consider whether the subject responds specifically to the interview query, as opposed to providing information that may be personally relevant. This item addresses Grice's relation maxim and is a general indice of a coherent narrative.

In making the overall rating consider the number of checkmarks but ultimately assign a value based on an overall, general perception of the subject's responses.

7. **Irrelevant information.** Subject provides circumstantial responses that deviate from the topic or the interview query. Excessive detail in response to an interview query may also qualify as "irrelevant". Raters should consider responses to be irrelevant if they do not address the interview query regardless of whether or not the information is personally relevant.

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

8. **Incomplete, abstract, or vague.** Subject provides responses that are overly vague, lacking in detail, and/or require repeated inquiries by the interviewer. The subject may describe attachment experiences in terms of abstractions or generalities. The subject may provide responses that require further probes for information and/or clarification.
In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

9. **Normalizes experience or provides positive wrap-up.** Subject may speak of the negative aspects of relationship experiences but diminish any negative impact on themselves or their personality. Furthermore, there may be an attempt to convince the interviewer that his or her attachment experiences were “normal”. Intellectualization may be an indication of this item. This item may covary significantly with “invulnerable or unaffected” but is distinguished based on a deliberate attempt to provide a more positive characterization than the experience demands. In the context of the PTRI, raters should note that it may be the case that therapists will resort to “normalizing” as opposed to “idealizing” their patients.

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

10. **Loses track of question or demonstrates an inability to focus.** An inability to focus on the interview question despite elaborate discussion of thoughts and feelings regarding attachment relationships. The subject may get lost in his or her own thoughts and lose track of the question altogether. Examples include, “I forgot… what was the question?” or “I’ve lost track of the point I was trying to make.” Note that subjects who change topics may be employing a strategy to diminish attachment experiences and, consequently, may receive higher ratings for dismissing items. This item is rated when a
subject is confused or overwhelmed by attachment experiences rather than one who attempts to move away.

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

11. Acknowledges mental states in self and/or other. The subject is able to describe thoughts and or feelings related to an event being described. For example, "I was aware that I was feeling frustrated when my therapist interrupted me." Or, "I had difficulty with my commute to Beth Israel so was often late for sessions, I assumed my therapist must have been annoyed although she did not show it."

In making an overall rating, any clear indication of the awareness of mental states should receive a high overall rating (3 or 4). Vague or confused indications should receive lower scores (1 or 2) and no awareness should receive a zero.

12. Demonstrates difficulty in recalling attachment related events. The subject asserts an inability to remember important attachment experiences. This lack of memory does not appear to be the consequence of severe trauma, but rather an attempt to deactivate or diminish the experience of attachment relationships. For example, a subject may be unable to provide episodic memories to support the adjectives they provided.

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.
13. Fractured unfinished or difficult to understand run-on sentences. Subject has difficulty finishing sentences or expressing ideas coherently. This may include false starts and inability to find the appropriate words. For example, “It was kinda like, you know, I don’t know.”

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

14. Credible or easy to believe. The subject appears honest in responding and provides support for his or her descriptions. This item addresses Grice’s quality maxim and is a general indice of a coherent narrative.

In making the overall rating consider the number of checkmarks but ultimately assign a value based on an overall, general perception of the subject’s responses.

15. Cool, aloof, or detached. Subject may dismiss the importance of attachment relationships, diminish the personal effects of these relationships, and may provide bland descriptions, or cliches. For example, “My therapist was supportive, but aren’t therapists supposed to be supportive?”

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

16. Stereotyped responses. The subject’s responses lack spontaneity or may sound rehearsed. A constricted affect is often an indicator of this item. The subject’s does not explore his or her feelings, but rather responds in a rote or profession manner. It may
sound as though the subject has pat responses that he recites when speaking of relationships. Examples include, “you know, he seemed concerned, like a therapist is supposed to.”

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

17. Intrusions in speech which interrupts the flow of ideas. The subject may have difficulty maintaining focus on one stream of thought. The subject may become easily distracted by his or her own thought processes.

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.

18. Unmarked quotation, pronoun confusion, slips of the tongue. Subject talks of his or her own experience in the second or third person. Example: Do you feel helpless? You know you feel frustrated, like nothing you do is any good.” In addition, the subject may quote extensively from another person without indicated a change in person.

In making the overall rating, consider both frequency and intensity of violations. As such, consider the number of check minuses, checks, and check pluses in assigning a global score for this item. Frequent or intense violations would render a score of 3 or 4 whereas infrequent and minor violations would render a score of 1 or 2.
19. *Unresolved with respect to trauma or loss.* This may include unresolved mourning, severe sorrow, or mental disorganization. In describing the loss, the subject may become overwhelmed and unable to modulate emotion.

In making an overall rating, coders should consider the intensity of the subject's response to discussing trauma and loss. Any indication of an extreme response (even infrequent) should render a score of 3 or 4.

20. *Demonstrates an inability to reason.* The subject may confuse dead/living, past/present, or make illogical statements (e.g., he died because I forgot to pray for him). This item should not be given a high rating if the subject acknowledges the lack of reasoning behind his or her response.

In making an overall rating, coders should consider the intensity of the subject's inability to monitor reasoning. Any indication of an extreme response (even infrequent) should render a score of 3 or 4.

21. *Demonstrates an awareness of the limitations of mental states.* Subject demonstrates an awareness of the limitation in an understanding of mental states in his or her view of the self and others. For example, “I think I mistook the fact that I feel anxious with what I imagined was irritability on the part of my therapist.” Or, “It took me time to realize that my therapist couldn’t solve my problems.”

In making an overall rating, any clear indication of an awareness of the limitation of mental states should receive a high overall rating (3 or 4). Vague or confused indications should receive lower scores (1 or 2) and no awareness should receive a zero.

22. *Presents self as invulnerable or unaffected.* The subject may or may not present difficult attachment experiences, but feelings of hurt, need, or distress are not expressed. Coders should note inconsistencies between discussion of the subject's experience and discussion of
feelings. For example, “My therapist told me she was going away for three weeks a few
days after my girlfriend broke up with me. I mean, I wasn’t psyched, but it was no big deal,
really. It wasn’t her problem.” Constriction of affect may be an indication of this item. The
subject may seem stoic about the support he or she can expect to receive from his attachment
figure.

In making the overall rating, consider both frequency and intensity of violations. As
such, consider the number of check minuses, checks, and check pluses in assigning a
global score for this item. Frequent or intense violations would render a score of 3 or 4
whereas infrequent and minor violations would render a score of 1 or 2.

23. Links mental states with motivations and/or behaviors. Subject demonstrates an
understanding of how mental states influence motivations or behaviors. For example, “my
therapist seemed annoyed when I talked about my friend’s problems, but I realize that he
wanted me to be able to focus on myself.”

In making an overall rating, any clear indication of an awareness of the limitation of
mental states should receive a high overall rating (3 or 4). Vague or confused indications
should receive lower scores (1 or 2) and no awareness should receive a zero.
Appendix D: Patient-Therapist Relationship Interview (P TRI)
Patient/Therapist Relationship Interview (P TRI)

Note: Interviewers should check the assessment log before making the P TRI appointment to ensure that patients have returned termination data. When making the appointment – interviewers should follow up with patients if this data has not been received.

INTRODUCTION FOR PATIENTS: In this interview, I’ll be asking you about your relationship with your current individual therapist, and how you think different aspects of the relationship have influenced who you are today. Throughout the interview, I will be asking you a series of questions and I may ask you to change topics periodically so that we can cover all the questions in the interview. This interview should take approximately one hour.

INTRODUCTION FOR THERAPISTS: In this interview, I’ll be asking you about your thoughts on your relationship with the patient. Throughout the interview, I will be asking you a series of questions and I may ask you to change topics periodically so that we can cover all the questions in the interview. This interview should take approximately one hour.

1. EMPHASIZE A BRIEF RESPONSE TO THIS QUESTION: Could you start by helping me to get oriented to your work with this therapist/patient? How did you address your patient/therapist? (NOTE: INTERVIEWER MAY USE THE PATIENT/ THERAPIST NAME THROUGHOUT INTERVIEW). When did you first start seeing the therapist/patient? How frequently have you seen the therapist/patient? Has the therapy been continuous? Have there been any other treaters involved?

2. I’d like you to try to describe your relationship with your therapist/patient going back to the beginning.

3. Now I’d like to ask you to choose five adjectives or words that reflect your relationship with your therapist/patient. Then afterwards I’ll ask you why you chose them. I’ll write each one down as you give them to me. ENSURE THAT PARTICIPANTS UNDERSTAND THEY ARE TO PROVIDE ADJECTIVES THAT REFLECT THE RELATIONSHIP. DO NOT PROVIDE ADDITIONAL PROMPTS.

Ok, let me go through some questions about your description. You say your relationship with him/her was _________. Are there other any memories or incidents that come to mind with respect to _________? IF YOU DO NOT GET A VIVID INCIDENT, REITERATE THE QUESTION AND PRESS MORE FIRMLY FOR A SPECIFIC EXAMPLE. AFTER TWO TRIES, GO ON TO THE NEXT WORD. CONTINUE THIS FOR ALL FIVE ADJECTIVES. EXAMPLES OF PROBES INCLUDE: Can you think of a specific memory that would illustrate how your relationship is (....)? Well that’s good general description, but I’m wondering if there
was a particular time that happened, that made you think about is as (……)?’ IF THE SUBJECT CANNOT SUCCEED YOU MIGHT CONTINUE BY SAYING: Well, that’s fine, let’s take the next one then.

4. When you are/were upset [in therapy], what did you do? When you were upset emotionally? Can you think of a specific time that happened? (IF SUBJECT DOES NOT SPONTANEOUSLY BRING UP THE THERAPIST’S/PATIENT’S REACTIONS PROBE: How did your therapist/patient respond?)

Were you ever ill during the course of your treatment? Do you remember what would happen? IF SUBJECT DOES NOT SPONTANEOUSLY BRING UP THE THERAPIST’S/PATIENT’S REACTIONS PROBE: How did your therapist/patient respond?

5. What is the first time you remember being separated from your therapist/patient? What was the nature of this separation (e.g., did therapist or patient cancel appointment?)

How did you respond? How did your therapist/patient respond? Are there other separations that stand out in your mind? What were separations from your therapist/patient like for you?

6. Have you felt rejected by your therapist/patient? How did you respond? Are there any particular instances that stand out in your mind? Why do you think your therapist/patient did those things? Do you think he/she realized he/she was rejecting?

7. Were you ever frightened or worried during the treatment? PROBE: How did your therapist/patient respond to your feelings of fear or worry during the course of your treatment?

8. Was your therapist/patient ever threatening with you in any way, even jokingly? PROBE FOR THREATS, SILENT TREATMENT, AND ABUSE. When did this occur? Did it happen frequently?

9. In the course of your thirty-session treatment, did you ever worry that your therapist/patient would end the treatment?

10. In general, how do you think your overall experiences with this therapist/patient [that we have been discussing] have affected your personality/who you are now? POSSIBLE PROBE: Are there any aspects of this relationship that you feel have been a setback for your development?

11. Why do you think your therapist/patient behaved the way he/she did as a therapist/patient?
12. Have you experienced any loss through death of a parent or other close loved one during the course of this treatment – for example, a sibling, or a close family member? Did this have an affect on your relationship with your patient/therapist?

13. Were there many changes in your relationship with your therapist/patient over the course of your treatment? PROBE: Did your feelings for your therapist/patient change over the course of your treatment?

14. Is there any particular thing which you feel you learned above all from this therapy relationship? I'm thinking here of something you feel you may have gained from the experience.

Questions 1-12, TO1 & TO2 are adapted from the Adult Attachment Interview (AAI, George, Kaplan & Main, 1999).

15. How do you think your therapist/patient feels about you? How do you feel about your therapist/patient?

16. If you met this therapist/patient in ordinary life would you want to be his/her friend?

17. Do you think of your therapist/patient outside of therapy? How often and in what ways?

18. Do you imagine having a different kind of relationship with this therapist/patient outside of the therapy situation?

19. Have you ever experienced your therapist/patient as critical of you? Are there any particular instances that stand out in your mind? Why do you think your therapist/patient did those things? Do you think he/she realized he/she was being experienced as critical?

20. During the course of this treatment did you have any significant relationships that came to an end? Did you experience any loss through the ending of those relationships? What about the loss of a job? FOR PATIENTS: How did your therapist respond? FOR THERAPISTS: How did this affect the treatment?

21. What were your feelings about your therapist/patient during the concluding phase of your therapy? Can you describe how you felt about your therapist/patient when your therapy ended?

22. Is there anything else that would help me to understand your relationship with the therapist/patient? (Or that I haven’t asked you?)
GO ON TO ITEMS SPECIFIC TO BRIEF PROJECT.

Rupture Resolution Items

1. You mentioned/Did you experience any tension, problems, conflicts or misunderstandings in your relationship with your patient/therapist. Can you describe a specific instance?

(IF APPLICABLE) When did the event occur in the course of treatment? What was your understanding of the cause of the event? What was your initial feeling or experience of it?

(IF APPLICABLE) Was this addressed or discussed? IF NO: why wasn’t this problem addressed? IF YES: Who first addressed it? Why do you think it was addressed? What was it like to discuss it?

To what extent was this resolved to your satisfaction? To what extent do you feel this problem was resolved to your patient’s/therapist’s satisfaction? What do you think was most important for its resolution (e.g., what did you or your patient do that was critical?). How did you feel upon its resolution?

Did you discover anything new or different about yourself in this process? Did you discover anything new about your patient/therapist in this process? THERAPIST ONLY: Did your patient discover anything new or different about him/herself in the process?

Did your understanding of the event change over the course of treatment? Did your patient’s/therapist’s understanding of the event change over the course of treatment? How do you think the event affected the therapy?

Treatment and Rupture Items – Brief Project

1. PATIENT: Do you think you changed over the course of treatment? THERAPIST: Do you think your patient changed over the course of treatment?

2. What do you think were the most helpful aspects of the therapy experience? Were there any aspects of the treatment that were not so helpful?

2. How did you feel about the length of treatment? Was it difficult to end after 30 sessions? THERAPIST ONLY: How do you think your patient felt about the length of treatment? Was it difficult for him/her to end after 30 sessions?
3. What was your idea or fantasy about what would happen in the course of treatment with your patient/therapist? Did any aspects of this fantasy come true?

4. Did your patient/therapist remind you of someone significant in your life? If yes, did you realize this early or late in the course of treatment?
Appendix E: Complete List of Coh-Metrix Causal Connectives
Causal Connectors:

<table>
<thead>
<tr>
<th>Connectives</th>
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<tr>
<td>a consequence of</td>
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<td>after all</td>
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<td>arise from</td>
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<td>arise out of</td>
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<td>as a consequence</td>
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<td>as a result</td>
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<td>as soon as</td>
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<td>because</td>
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<td>Cause</td>
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<td>follow that</td>
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<td>For</td>
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<td>for (the/these/that) purpose</td>
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<td>hence</td>
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<td>in case</td>
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<td>on (the)* condition that</td>
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<td>to (these/this) ends</td>
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<td>to that end</td>
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<tr>
<td>to those ends</td>
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<tr>
<td>Whenever</td>
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</table>
Any of the words in parentheses may be used. An * indicates that no word is also an option.
Appendix F: Patient Post-Session Questionnaire (PSQ)

In Section C:
Patient Working Alliance Inventory (WAI)
SECTION A: Please circle the appropriate number.

1. How helpful or hindering for you was this session overall?

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<tbody>
<tr>
<td>Extremely hindering</td>
<td>Neutral</td>
<td>Extremely helpful</td>
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2. To what extent are your presenting problems resolved?

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<tbody>
<tr>
<td>Not at all</td>
<td>Moderately</td>
<td>Completely</td>
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SECTION B: Please circle the appropriate number to show how you feel about this session.

1. Bad
2. Safe
3. Difficult
4. Valuable
5. Shallow
6. Relaxed
7. Unpleasant
8. Full
9. Weak
10. Special
11. Rough
12. Comfortable

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<tr>
<td>Good</td>
<td>Dangerous</td>
<td>Easy</td>
<td>Worthless</td>
<td>Deep</td>
<td>Tense</td>
<td>Pleasant</td>
<td>Empty</td>
<td>Powerful</td>
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SECTION C: Please circle the appropriate number to indicate how you felt about your working relationship with your therapist based on this session.

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<tbody>
<tr>
<td>My therapist and I agree about the things I need to do in therapy to help improve my situation.</td>
<td>Not at all</td>
<td>Somewhat</td>
<td>Completely</td>
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<td>What we are doing in therapy gives me new ways of looking at my problem.</td>
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<td>I believe that my therapist likes me.</td>
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<td>My therapist does not understand what I am trying to accomplish in therapy.</td>
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<td>I am confident in my therapist's ability to help me.</td>
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<td>My therapist and I are working toward mutually agreed upon goals.</td>
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<td>I feel that my therapist appreciates me.</td>
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<td>We agree on what is important for me to work on.</td>
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<td>My therapist and I seem to trust one another.</td>
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<td>My therapist and I seem to have different ideas on what my problems are.</td>
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<td>We have established a good understanding of the kind of changes that would be good for me.</td>
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<td>I believe the way we were working with my problem is correct.</td>
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<td>My therapist and I respect each other.</td>
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<tr>
<td>I feel that the things I do in therapy will help me accomplish the changes that I want.</td>
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<td>My therapist and I collaborate on setting goals for my therapy.</td>
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<td>I feel my therapist cares about me even when I do things that he/she does not approve of.</td>
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<td>As a result of these sessions, I am clearer as to how I might be able to change.</td>
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SECTION D: Please circle the appropriate number.

1. a) Did you experience any tension or problem, any misunderstanding, conflict or disagreement, in your relationship with your therapist during the session?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Occasionally</th>
<th>Constantly</th>
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<td>1</td>
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Mildly | Moderately | Extremely

b) If yes, please rate how tense or upset you felt about this during the session.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very much</th>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Mildly | Moderately | Extremely

2. a) To what extent did you find yourself and your therapist overly accommodating or overly protective of each other? Or to what extent did you feel you were making nice or smoothing things over? Or to what extent did you feel you were holding back or avoiding something?

b) If yes, please rate how tense or upset you felt about this during the session.

3. Please describe the problem:

4. To what extent was this problem addressed in this session?

5. To what degree do you feel this problem was resolved by the end of the session?

6. What do you think contributed to the resolution of the problem? Please describe:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Please indicate:

SECTION E: If you experienced any problems with your therapist during this session (any tension, misunderstanding, conflict, disagreement, over-accommodation or avoidance), please rate the extent to which the following statements reflect your experience in this session.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Somewhat</th>
<th>Definitely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

1. I felt a closer connection with my therapist.
2. I discovered feelings toward my therapist that I had not been fully aware of.
3. My therapist and I were able to work through a conflict and connect in a stronger way.
4. I saw how I was contributing to the difficulties my therapist and I were having.
5. I acted in a way that felt more authentic or genuine for me.
6. I recognized and accepted my therapist's limitations.
7. I felt freer to make mistakes with my therapist.
8. I became aware of ways in which I avoid creating conflicts and misunderstandings with my therapist.
9. I saw that I can expose risky feelings and not be rejected or criticized by my therapist.
10. I began to get the sense that I don't have to protect my therapist.
11. I felt more comfortable with expressing vulnerability or anger towards my therapist.
12. I told my therapist something I had been hesitant to say.
13. I felt able to disagree with my therapist.
14. I began to accept a part of myself, which I had not fully acknowledged before.
15. I said something to my therapist that I had felt for a while and it left me with a sense of relief.
16. I saw that I was doing something to distance myself from my therapist or push him/her away.
17. I felt more trusting of my therapist.
18. I was afraid something I said would upset or hurt my therapist but I found out that it did not.
Appendix G: Therapist Post-Session Questionnaire (PSQ)

In Section C:
Therapist Working Alliance Inventory (WAI)
# THERAPIST POST-SESSION QUESTIONNAIRE – Version 2006

**Please complete immediately after session (or as close as possible) so that your memory of the session remains fresh.**

<table>
<thead>
<tr>
<th>Your initials:</th>
<th>Your patient's initials:</th>
<th>Session number:</th>
<th>Date of session:</th>
</tr>
</thead>
</table>

## SECTION A: Please circle the appropriate number.

1. How helpful or hindering to your patient this session was overall?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely hindering</td>
<td>Neutral</td>
<td>Extremely helpful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. To what extent are your patient's presenting problems resolved?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>Moderately</td>
<td>Completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## SECTION B: Please circle the appropriate number to show how you feel about this session.

- **Bad**
- **Safe**
- **Difficult**
- **Valuable**
- **Shallow**
- **Relaxed**
- **Unpleasant**
- **Full**
- **Weak**
- **Special**
- **Rough**
- **Comfortable**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Dangerous</td>
<td>Easy</td>
<td>Worthless</td>
<td>Deep</td>
<td>Tense</td>
<td>Pleasant</td>
<td>Empty</td>
<td>Powerful</td>
</tr>
</tbody>
</table>

## SECTION C: Please circle the appropriate number to indicate how you felt about working relationship with your patient based on this session.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>My patient and I agree about the things he/she needs to do in therapy to help improve his/her situation.</td>
<td>My patient and I both feel confident about the usefulness of our current activity in therapy.</td>
<td>I believe my patient likes me.</td>
<td>I have doubts about what we are trying to accomplish in therapy.</td>
<td>I am confident in my ability to help my patient.</td>
<td>We are working toward mutually agreed upon goals.</td>
<td>I appreciate my patient as a person.</td>
<td>We agree on what is important for him/her to work on.</td>
<td>My patient and I have built a mutual trust.</td>
</tr>
</tbody>
</table>
SECTION D: Please circle the appropriate number.

1. a) Did you experience any tension or problem, any misunderstanding, conflict or disagreement, in your relationship with your patient during the session?
   Not at all Occasionally Constantly
   Mildly Moderately Extremely
   1 2 3 4 5

   b) If yes, please rate how tense or upset you felt about this during the session:
   1 2 3 4 5

2. a) To what extent did you find yourself and your patient overly accommodating or overly protective of each other? Or to what extent did you feel you were making nice or smoothing things over? Or to what extent did you feel you were holding back or avoiding something?
   Not at all Somewhat Very much
   Mildly Moderately Extremely
   1 2 3 4 5

   b) If yes, please rate how tense or upset you felt about this during the session.
   1 2 3 4 5

3. Please describe the problem:

4. To what extent was this problem addressed in this session?
   Not at all Somewhat Very much
   1 2 3 4 5

5. To what degree do you feel this problem was resolved by the end of the session?
   1 2 3 4 5

6. What do you think contributed to the resolution of the problem? Please describe:

SECTION E: If you experienced any problems with your patient during this session (any tension, misunderstanding, conflict, disagreement, over-accommodation or avoidance), please rate the extent to which the following statements reflect your experience in this session.

1. I felt a closer connection with my patient.
   Not at all Somewhat Definitely
   1 2 3 4 5

2. I found myself talking about feelings I didn’t know I had.
   1 2 3 4 5

3. My patient and I were able to work through a conflict and connect in a stronger way.
   1 2 3 4 5

4. I saw how I was contributing to the difficulties my patient and I were having.
   1 2 3 4 5

5. I acted in a way that felt more authentic or genuine for me.
   1 2 3 4 5

6. I recognized and accepted my patient’s limitations.
   1 2 3 4 5

7. I felt freer to make mistakes with my patient.
   1 2 3 4 5

8. I became aware of ways in which I avoid creating conflicts and misunderstandings with my patient.
   1 2 3 4 5

9. I saw that I can expose risky feelings and not be rejected/criticized by my patient.
   1 2 3 4 5

10. I began to get the sense that I don’t have to protect my patient.
    1 2 3 4 5

11. I felt more comfortable with expressing vulnerability or anger towards my patient.
    1 2 3 4 5

12. I told my patient something I had been hesitant to say.
    1 2 3 4 5

13. I felt able to disagree with my patient.
    1 2 3 4 5

14. I began to accept a part of myself, which I had not fully acknowledged before.
    1 2 3 4 5

15. I said something to my patient that I had felt for a while and it left me with a sense of relief.
    1 2 3 4 5

16. I saw that I was doing something to distance myself from my patient or push him/her away.
    1 2 3 4 5

17. I felt more trusting of my patient.
    1 2 3 4 5

18. I was afraid something I said would upset or hurt my patient but I found out that it didn’t.
    1 2 3 4 5
**Instructions:** We are interested in what you just experienced in your session with your patient. Below is a list of things that people sometimes experience. Next to each statement are five choices: "not at all", "a little", "moderately", "quite a bit" and "very much". Please indicate the extent to which you experienced each statement. In other words, how well does the statement describe what you experienced in session with your patient?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I experienced myself as separate from my changing thoughts and feelings.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I was more concerned with being open to my experiences than controlling or changing them.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I was curious about what I might learn about myself by taking notice of how I react to certain thoughts, feelings or sensations.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I experienced my thoughts more as events in my mind than as a necessarily accurate reflection of the way things ‘really’ are.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I was curious to see what my mind was up to from moment to moment.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I was curious about each of the thoughts and feelings that I was having.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I was receptive to observing unpleasant thoughts and feelings without interfering with them.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. I was more invested in just watching my experiences as they arose, than in figuring out what they could mean.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I approached each experience by trying to accept it, no matter whether it was pleasant or unpleasant.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I remained curious about the nature of each experience as it arose.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. I was aware of my thoughts and feelings without over-identifying with them.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. I was curious about my reactions to things.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. I was curious about what I might learn about myself by just taking notice of what my attention gets drawn to.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. I was not worried about what others may be thinking of me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I had a strong sense of what I want to do.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. I was aware of how well I was doing in the session.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. I felt I was competent enough to meet the high demands of the situation.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. The things I said and did came automatically without thinking too much.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. I had a sense of control over what I was doing.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. I was completely focused on the task at hand.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21. I lost my normal awareness of time.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. I found the experience extremely rewarding.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix H: Symptom Checklist-90R (SCL-90R)
**INSTRUCTIONS:**

Below is a list of problems people sometimes have. Please read each one carefully, and circle the number to the right that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Circle only one number for each problem and do not skip any items. If you change your mind, erase your first mark carefully. Read the example below before beginning, and if you have any questions please ask about them.

**EXAMPLE**

**HOW MUCH WERE YOU DISTRESSED BY:**

1. Bodyaches

**HOW MUCH WERE YOU DISTRESSED BY:**

<table>
<thead>
<tr>
<th></th>
<th>NOT AT ALL</th>
<th>A LITTLE BIT</th>
<th>MODERATELY</th>
<th>QUITE A BIT</th>
<th>EXTREMELY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Headaches</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>Nervousness or shakiness inside</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Repeated unpleasant thoughts that won’t leave your mind</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Faintness or dizziness</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>Loss of sexual interest or pleasure</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6.</td>
<td>Feeling critical of others</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7.</td>
<td>The idea that someone else can control your thoughts</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8.</td>
<td>Feeling others are to blame for most of your troubles</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9.</td>
<td>Trouble remembering things</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10.</td>
<td>Worried about sloppiness or carelessness</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11.</td>
<td>Feeling easily annoyed or irritated</td>
<td>11</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12.</td>
<td>Pains in heart or chest</td>
<td>12</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13.</td>
<td>Feeling afraid in open spaces or on the streets</td>
<td>13</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>14.</td>
<td>Feeling low in energy or slowed down</td>
<td>14</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>15.</td>
<td>Thoughts of ending your life</td>
<td>15</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>16.</td>
<td>Hearing voices that other people do not hear</td>
<td>16</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>17.</td>
<td>Trembling</td>
<td>17</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>18.</td>
<td>Feeling that most people cannot be trusted</td>
<td>18</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>19.</td>
<td>Poor appetite</td>
<td>19</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20.</td>
<td>Crying easily</td>
<td>20</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>21.</td>
<td>Feeling shy or uneasy with the opposite sex</td>
<td>21</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>22.</td>
<td>Feelings of being trapped or caught</td>
<td>22</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23.</td>
<td>Suddenly scared for no reason</td>
<td>23</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24.</td>
<td>Temper outbursts that you could not control</td>
<td>24</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>25.</td>
<td>Feeling afraid to go out of your house alone</td>
<td>25</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>26.</td>
<td>Blaming yourself for things</td>
<td>26</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>27.</td>
<td>Pains in lower back</td>
<td>27</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>28.</td>
<td>Feeling blocked in getting things done</td>
<td>28</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>29.</td>
<td>Feeling lonely</td>
<td>29</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>30.</td>
<td>Feeling blue</td>
<td>30</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>31.</td>
<td>Worrying too much about things</td>
<td>31</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>32.</td>
<td>Feeling no interest in things</td>
<td>32</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>33.</td>
<td>Feeling fearful</td>
<td>33</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>34.</td>
<td>Your feelings being easily hurt</td>
<td>34</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>35.</td>
<td>Other people being aware of your private thoughts</td>
<td>35</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Please continue on the following page...
<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Feeling others do not understand you or are unsympathetic</td>
<td>36</td>
</tr>
<tr>
<td>37</td>
<td>Feeling that people are unfriendly or dislike you</td>
<td>37</td>
</tr>
<tr>
<td>38</td>
<td>Having to do things very slowly to insure correctness</td>
<td>38</td>
</tr>
<tr>
<td>39</td>
<td>Heart pounding or racing</td>
<td>39</td>
</tr>
<tr>
<td>40</td>
<td>Nausea or upset stomach</td>
<td>40</td>
</tr>
<tr>
<td>41</td>
<td>Feeling inferior to others</td>
<td>41</td>
</tr>
<tr>
<td>42</td>
<td>Soreness of your muscles</td>
<td>42</td>
</tr>
<tr>
<td>43</td>
<td>Feeling that you are watched or talked about by others</td>
<td>43</td>
</tr>
<tr>
<td>44</td>
<td>Trouble falling asleep</td>
<td>44</td>
</tr>
<tr>
<td>45</td>
<td>Having to check and double-check what you do</td>
<td>45</td>
</tr>
<tr>
<td>46</td>
<td>Difficulty making decisions</td>
<td>46</td>
</tr>
<tr>
<td>47</td>
<td>Feeling afraid to travel on buses, subways, or trains</td>
<td>47</td>
</tr>
<tr>
<td>48</td>
<td>Trouble getting your breath</td>
<td>48</td>
</tr>
<tr>
<td>49</td>
<td>Hot or cold spells</td>
<td>49</td>
</tr>
<tr>
<td>50</td>
<td>Having to avoid certain things, places, or activities because they frighten you</td>
<td>50</td>
</tr>
<tr>
<td>51</td>
<td>Your mind going blank</td>
<td>51</td>
</tr>
<tr>
<td>52</td>
<td>Numbness or tingling in parts of your body</td>
<td>52</td>
</tr>
<tr>
<td>53</td>
<td>A lump in your throat</td>
<td>53</td>
</tr>
<tr>
<td>54</td>
<td>Feeling hopeless about the future</td>
<td>54</td>
</tr>
<tr>
<td>55</td>
<td>Trouble concentrating</td>
<td>55</td>
</tr>
<tr>
<td>56</td>
<td>Feeling weak in parts of your body</td>
<td>56</td>
</tr>
<tr>
<td>57</td>
<td>Feeling tense or keyed up</td>
<td>57</td>
</tr>
<tr>
<td>58</td>
<td>Heavy feelings in your arms or legs</td>
<td>58</td>
</tr>
<tr>
<td>59</td>
<td>Thoughts of death or dying</td>
<td>59</td>
</tr>
<tr>
<td>60</td>
<td>Overeating</td>
<td>60</td>
</tr>
<tr>
<td>61</td>
<td>Feeling uneasy when people are watching or talking about you</td>
<td>61</td>
</tr>
<tr>
<td>62</td>
<td>Having thoughts that are not your own</td>
<td>62</td>
</tr>
<tr>
<td>63</td>
<td>Having urges to beat, injure, or harm someone</td>
<td>63</td>
</tr>
<tr>
<td>64</td>
<td>Awakening in the early morning</td>
<td>64</td>
</tr>
<tr>
<td>65</td>
<td>Having to repeat the same actions such as touching, counting, or washing</td>
<td>65</td>
</tr>
<tr>
<td>66</td>
<td>Sleep that is restless or disturbed</td>
<td>66</td>
</tr>
<tr>
<td>67</td>
<td>Having urges to break or smash things</td>
<td>67</td>
</tr>
<tr>
<td>68</td>
<td>Having ideas or beliefs that others do not share</td>
<td>68</td>
</tr>
<tr>
<td>69</td>
<td>Feeling very self-conscious with others</td>
<td>69</td>
</tr>
<tr>
<td>70</td>
<td>Feeling uneasy in crowds, such as shopping or at a movie</td>
<td>70</td>
</tr>
<tr>
<td>71</td>
<td>Feeling everything is an effort</td>
<td>71</td>
</tr>
<tr>
<td>72</td>
<td>Spells of terror or panic</td>
<td>72</td>
</tr>
<tr>
<td>73</td>
<td>Feeling uncomfortable about eating or drinking in public</td>
<td>73</td>
</tr>
<tr>
<td>74</td>
<td>Getting into frequent arguments</td>
<td>74</td>
</tr>
<tr>
<td>75</td>
<td>Feeling nervous when you are left alone</td>
<td>75</td>
</tr>
<tr>
<td>76</td>
<td>Others not giving you proper credit for your achievements</td>
<td>76</td>
</tr>
<tr>
<td>77</td>
<td>Feeling lonely even when you are with people</td>
<td>77</td>
</tr>
<tr>
<td>78</td>
<td>Feeling so restless you couldn't sit still</td>
<td>78</td>
</tr>
<tr>
<td>79</td>
<td>Feelings of worthlessness</td>
<td>79</td>
</tr>
<tr>
<td>80</td>
<td>The feeling that something bad is going to happen to you</td>
<td>80</td>
</tr>
<tr>
<td>81</td>
<td>Shouting or throwing things</td>
<td>81</td>
</tr>
<tr>
<td>82</td>
<td>Feeling afraid you will faint in public</td>
<td>82</td>
</tr>
<tr>
<td>83</td>
<td>Feeling that people will take advantage of you if you let them</td>
<td>83</td>
</tr>
<tr>
<td>84</td>
<td>Having thoughts about sex that bother you a lot</td>
<td>84</td>
</tr>
<tr>
<td>85</td>
<td>The idea that you should be punished for your sins</td>
<td>85</td>
</tr>
<tr>
<td>86</td>
<td>Thoughts and images of a frightening nature</td>
<td>86</td>
</tr>
<tr>
<td>87</td>
<td>The idea that something serious is wrong with your body</td>
<td>87</td>
</tr>
<tr>
<td>88</td>
<td>Never feeling close to another person</td>
<td>88</td>
</tr>
<tr>
<td>89</td>
<td>Feelings of guilt</td>
<td>89</td>
</tr>
<tr>
<td>90</td>
<td>The idea that something is wrong with your mind</td>
<td>90</td>
</tr>
</tbody>
</table>
Appendix I: Global Assessment Scale (GAS)
Global Assessment Scale (GAS)

Robert L. Spitzer M.D., Miriam Gibbon M.S.W., Jean Endicott Ph.D

Rate the subject's lowest level of functioning in the last week by selecting the lowest range which describes his functioning on a hypothetical continuum of mental health-illness. For example, a subject whose "behavior is considerably influenced by delusions" (range 21-30) should be given a rating in that range even though he has "major impairment in several areas" (range 31-40). Use intermediary levels when appropriate (e.g. 35,58,62). Rate actual functioning independent of whether or not subject is receiving and may be helped by medication or some other form of treatment.

Name of Patient    ID No.    Group code

Admission Date    Date of rating    Rater

GAS Rating

100 Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his warmth and integrity.

91 No Symptoms.

90 Good functioning in all areas, many interests, socially effective, generally satisfied with life. There may or may not be transient symptoms and "everyday" worries that only occasionally get out of hand.

80 No more than slight impairment in functioning, varying degrees of "everyday" worries and problems that sometimes get out of hand. Minimal symptoms may or may not be present.

70 Some mild symptoms (e.g. depressive mood and mild insomnia) OR some difficulty in several areas of functioning, but generally functioning pretty well, has some meaningful interpersonal relationships and most untrained people would not consider him "sick".

60 Moderate symptoms OR generally functioning with some difficulty (e.g. few friends and flat affect, depressed mood and pathological self-doubt, euphoric mood and pressure of speech, moderately severe antisocial behavior).

50 Any serious symptomatology or impairment in functioning that most clinicians would think obviously requires treatment or attention (e.g. suicidal preoccupation or gesture, severe obsessional rituals, frequent anxiety attacks, serious antisocial behavior, compulsive drinking, mild but definite manic syndrome).

40 Major impairment in several areas, such as work, family relations, judgment, thinking or mood (e.g. depressed woman avoids friends, neglects family, unable to do housework) OR some impairment in reality testing or communications (e.g. speech is at times obscure, illogical or irrelevant), OR single suicide attempt.

30 Unable to function in almost all areas (e.g. stays in bed all day) OR behavior is considerably influenced by either delusions or hallucinations OR serious impairment in communication (e.g. sometimes incoherent or unresponsive) OR gross impairment in communication (e.g. acts grossly inappropriately).

20 Needs some supervision to prevent hurting self or others, or to maintain minimal personal hygiene (e.g. repeated suicide attempts, frequently violent, manic excitement, smears feces) OR gross impairment in communication (e.g. largely incoherent or mute).

10 Needs constant supervision for several days to prevent hurting self or others (e.g. requires an intensive care unit with special observation by staff), makes no attempt to maintain minimal personal hygiene, or serious suicide act with clear intent and expectation of death.
Appendix J: Patient Inventory of Interpersonal Problems-64 (IIP-64)
Inventory of Interpersonal Problems

Here is a list of problems that people report in relating to other people. Please read the list below, and for each item, consider whether that problem is a problem for you with respect to people in your life. Then select the number that describes how distressing that problem is and circle that number.

EXAMPLE

How much have you been distressed by this problem?

It is hard for me to:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Moderately</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. get along with my relatives.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Part I. The following are things you find hard to do with other people.

It is hard for me to:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Moderately</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. trust other people.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2. say &quot;no&quot; to other people.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3. join in on groups.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4. keep things private from other people.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. let other people know what I want.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>6. tell a person to stop bothering me.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7. introduce myself to new people.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>8. confront people with problems that come up.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>9. be assertive with another person.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10. let other people know when I am angry.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>11. make a long-term commitment to another person.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>12. be another person's boss.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>13. be aggressive with other people when the situation calls for it.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>14. socialize with other people.</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>15. show affection to people.</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
16. get along with people. 0 1 2 3 4
17. understand another person's point of view. 0 1 2 3 4
18. express my feelings to other people directly. 0 1 2 3 4
19. be firm when I need to be. 0 1 2 3 4
20. experience a feeling of love for another person. 0 1 2 3 4
21. set limits on other people. 0 1 2 3 4
22. be supportive of another person's goals in life. 0 1 2 3 4
23. feel close to other people. 0 1 2 3 4
24. really care about other people's problems. 0 1 2 3 4
25. argue with another person. 0 1 2 3 4
26. spend time alone. 0 1 2 3 4
27. give a gift to another person. 0 1 2 3 4
28. let myself feel angry at somebody I like. 0 1 2 3 4
29. put someone else's needs before my own. 0 1 2 3 4
30. stay out of other people's business. 0 1 2 3 4
31. take instructions from people who have authority over me. 0 1 2 3 4
32. feel good about another person's happiness. 0 1 2 3 4
33. ask other people to get together socially with me. 0 1 2 3 4
34. feel angry at other people. 0 1 2 3 4
35. open up and tell my feelings to another person. 0 1 2 3 4
36. forgive another person after I've been angry. 0 1 2 3 4
37. attend to my own welfare when somebody else is needy. 0 1 2 3 4
38. be assertive without worrying about hurting the other person's feelings. 0 1 2 3 4
39. be self-confident when I am with other people. 0 1 2 3 4
Part II. The following are things that you do too much.

40. I fight with other people too much. 0 1 2 3 4
41. I feel too responsible for solving other people's problems. 0 1 2 3 4
42. I am too easily persuaded by other people. 0 1 2 3 4
43. I open up to people too much. 0 1 2 3 4
44. I am too independent. 0 1 2 3 4
45. I am too aggressive toward other people. 0 1 2 3 4
46. I try to please other people too much. 0 1 2 3 4
47. I clown around too much. 0 1 2 3 4
48. I want to be noticed too much. 0 1 2 3 4
49. I trust other people too much. 0 1 2 3 4
50. I try to control other people too much. 0 1 2 3 4
51. I put other people's needs before my own too much. 0 1 2 3 4
52. I try to change other people too much. 0 1 2 3 4
53. I am too gullible. 0 1 2 3 4
54. I am overly generous to other people. 0 1 2 3 4
55. I am too afraid of other people. 0 1 2 3 4
56. I am too suspicious of other people. 0 1 2 3 4
57. I manipulate other people too much to get what I want. 0 1 2 3 4
58. I tell personal things to other people too much. 0 1 2 3 4
59. I argue with other people too much. 0 1 2 3 4
60. I keep other people at a distance too much. 0 1 2 3 4
61. I let other people take advantage of me too much. 0 1 2 3 4
62. I feel embarrassed in front of other people too much. 0 1 2 3 4
63. I am affected by another person's misery too much. 0 1 2 3 4
64. I want to get revenge against people too much.
Appendix K: Therapist Inventory of Interpersonal Problems-32 (IIP-32)
Inventory of Interpersonal Problems-SC

Here is a list of problems that people report in relating to other people. Please read the list below, and for each item, consider whether that item has been a problem for how distressing that problem has been, and circle that number.

Then select the number that describes

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately a bit</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The following are things this person finds hard to do with other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>join in on groups</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>keep things private from other people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>tell a person to stop bothering him/her</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>introduce him/herself to new people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>confront people with problems that come up</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>be assertive with another person</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>let other people know when he/she is angry</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>socialize with other people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>show affection to people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>understand another person’s point of view</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1. be firm when he/she needs to be</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. experience a feeling of love for another person</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. be supportive of another person’s goals in life</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. feel close to other people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. feel good about another person’s happiness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. ask other people to get together socially with him/her</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. attend to his/her own welfare when somebody else is needy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. be assertive without worrying about hurting the other person’s feelings</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. he/she is too easily persuaded by other people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. he/she opens up to people too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. he/she is too aggressive toward other people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. he/she tries to please other people too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. he/she wants to be noticed too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. he/she tries to control other people too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. he/she puts other people’s needs before his/her own too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. he/she is too suspicious of other people</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. he/she tells personal things to other people too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. he/she argues with other people too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. he/she keeps other people at a distance too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. he/she lets other people take advantage of him/her too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21. he/she is affected by another person’s misery too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. he/she wants to get revenge against people too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix L: Target Complaints (TC)
Pt. Name: __________________________  Date: __________________________

These are the main problems or difficulties that your patient previously reported. Please rate in general how much each problem seems to bother your patient currently by circling the appropriate number?

(1) ____________________________________________________________

In general, how much does this problem bother your patient?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>not</td>
<td>a</td>
<td>pretty</td>
<td>very</td>
<td>couldn't</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at all</td>
<td>little</td>
<td>much</td>
<td>much</td>
<td>be worse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(2) ____________________________________________________________

In general, how much does this problem bother your patient?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>not</td>
<td>a</td>
<td>pretty</td>
<td>very</td>
<td>couldn't</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at all</td>
<td>little</td>
<td>much</td>
<td>much</td>
<td>be worse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(3) ____________________________________________________________

In general, how much does this problem bother your patient?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>not</td>
<td>a</td>
<td>pretty</td>
<td>very</td>
<td>couldn't</td>
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<td>at all</td>
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Following are the target complaints you patient added at midphase. Please rate in general how much each of these additional problems seems to still bother your patient by circling the appropriate number?

(4) __________________________________________

In general, how much does this problem bother your patient?

1 2 3 4 5 6 7 8 9 10 11 12 13
|   |   |   |   |
not a pretty very couldn't
at all little much much be worse

(5) __________________________________________

In general, how much does this problem bother your patient?

1 2 3 4 5 6 7 8 9 10 11 12 13
|   |   |   |   |
not a pretty very couldn't
at all little much much be worse