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Young Adults' Attachment and Recall of Stressful Interpersonal Situations

Marcie Rochelle Dudeck

A Thesis

in

The Department

of

Psychology

Presented in Partial Fulfillment of the Requirements  
for the Degree of Master of Arts at  
Concordia University  
Montreal, Quebec, Canada

June 2003

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## Abstract

### Young Adults' Attachment and Recall of Stressful Interpersonal Situations

Marcie Rochelle Dudeck

The current study investigated how activation of young adults' attachment schemas influence their social information processing, cognitive attributions, and feelings relating to stressful interpersonal situations with their mothers, fathers, best-friends, and romantic partners. Participants (N = 132, mean age = 24) completed a measure of anxious and avoidant attachment (Brennan et al., 1998), made attributions about self and others in response to stressful interpersonal vignettes, and then were given a recall task.

Hypotheses were guided by two models: 1) Schema-Consistent Processing (i.e., attachment style should facilitate recall by assimilating *belief-congruent* information); and 2) Processing Limits (i.e., attachment-related memories should interfere with information processing resources upon activation of similar memories). Consistent with the Schema-Consistent Processing model, those who had higher attachment anxiety recalled themselves more negatively. Three other findings were not consistent with either processing model: a) females who were lower on attachment avoidance recalled more feelings; b) participants who were more avoidant tended to recall a greater number and more emotionally intense thoughts about self; and c) the higher the level of attachment anxiety, the less likely one was to recall a combination of positive and negative thoughts about others. The overall pattern of results suggests the need for several processes to

explain how internal working models of attachment influence interpretation of negative interpersonal situations.

## Dedication

*My Master's thesis is dedicated to my Dad - Jerry Dudeck*

*When my Dad tragically passed away, on March 18, 2003, the devastation and pain pierced a hole in my heart and now it is his spirit which is slowly going to fill it in so that he will live inside of me forever.*

*Words alone cannot express the thanks I owe my Dad for his tremendous encouragement and love that he expressed to me throughout my life.*

*Dad, I miss you with every ounce of my being and I am really happy to have been able to have made you so proud of me.*

## Acknowledgements

The undertaking of a Master's thesis is a test of endurance, commitment, and intelligence. The opportunity to present this original scholarly work in a clear and convincing manner would not have come into fruition without a number of key people.

I would like to thank my research supervisor, Dr. Dorothy Markiewicz, for her direction, assistance, and guidance throughout the process of completing my Master's thesis. I also wish to thank her for being such a supportive and caring human being.

I want to thank my "second supervisor," Dr. Anna-Beth Doyle, for investing so much time into editing drafts of my thesis and for her helpful comments related to virtually all aspects of this study.

Thanks are also due to my third committee member, Dr. Norman Segalowitz, for providing me with feedback on my proposal and for sharing his expert knowledge in the area of cognition with me.

I would like to thank Dave Kemp for his hard work on helping me code the Vignette Recall Task data. Thank you Dave for being so patient, calm, and insightful throughout the entire coding process.

I would also like to acknowledge the strong support I received from numerous family members and friends throughout these last two years of working on my Master's thesis. To my wonderfully supportive and loving Mom, Elaine Dudeck, who helped me put my stresses relating to my thesis into perspective. To my brother, Charlie Dudeck, who has the attitude and substance of a spiritual guru for being able to "ground me" whenever I felt I was losing touch with my true "self." To my cousin, Kevin Rodkin, for helping me experience firsthand that laughter truly is the best medicine. To Shira



Palansky for being the best “best friend” I could ever ask for. To Shari Mayman, Jen Karp, and Marlene Taube-Schiff for being such invaluable mentors and friends to me. To Oprah, who I really admire and who inspired me to earn a position in the world that positively affects humanity.

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## Introduction

Bowlby (1982) described the attachment system as an inborn system aimed at maintaining proximity to supportive others (i.e., “attachment figures”) during threatening times. Therefore, one of the basic assumptions of his theory is that the attachment system is particularly susceptible to being activated during stressful conditions. Bowlby (1982) hypothesized that physical or psychological threats automatically activate the attachment system, motivating the individual to maintain or restore proximity to attachment figures. In situations in which the attachment figures are absent, representations of these figures can continue to be influential upon a person’s thoughts, feelings, and behaviours.

The present study investigated how activation of young adults’ attachment schemas in relation to their mothers, fathers, best-friends, and romantic partners might influence their social information processing (e.g., memory recall, attention), cognitive attributions, and feelings relating to computer presented vignettes. These vignettes were designed to activate four different schemas by focusing on interpersonal situations involving four target figures: mother, father, best friend, and romantic partner.

Cognitive research indicates that people are more prone to remember information that is consistent with their schemas than information that is not (e.g., Brewer & Treyns, 1981). While studies have focused on the effects of activating *non-social* schemas upon recall (e.g., Potter, Stiefbold, & Moryadas, 1998), there is a relatively smaller amount of empirical research on the effects of *social*-based (i.e., interpersonal) schemas on information processing measures (for an exception see Miller & Noirot, 1999). This type of research has value in attempting to clarify the type of information people attend to in interpersonal situations by investigating the associations between attributions and

feelings in combination with recall and reading times. Studies of this kind would also contribute to the understanding of processing attachment information by using automatic information processing measures (e.g., reading times) in addition to the traditional self-report measures (i.e., controlled information processing measures) used for assessing attachment. Information processing measures are ideal for allowing us to tap into implicit aspects of internal working models (IWMs). This integration of explicit and implicit attachment measures in the current study has rarely been done before and should contribute to a comprehensive social cognition model of attachment.

The current study aimed to further our understanding of schema-based cognitive models and processes by exploring the effects of activation of stressful interpersonal schemas on information processing. Adults with different attachment styles were predicted to differ in their emotional reactions, cognitive attributions, and abilities to process information in the context of reading vignettes that involved negative relationship events. In this study, ability to process information was assessed in terms of reading time and recall of participants' associated thoughts and feelings as well as vignette detail.

#### *Background on Attachment Research*

Bowlby (1973, 1980, 1982, 1988) asserted that 'attachment' refers to a protective system in which infants use caretakers as safe havens and secure bases from which to explore their environments. According to Bowlby, attachment bonds are characterized by four features: (1) close proximity (i.e., tendency to enjoy being in close proximity to attachment figures), (2) safe haven (i.e., attachment figure assists with easing distress during times of need), (3) separation distress (i.e., actively resist separations during times



of need), and (4) secure base (i.e., providing a place from which people feel they can independently venture into non-attachment behaviours, such as exploration).

Ainsworth and her colleagues (1978) made an important addition to Bowlby's attachment theory by investigating individual differences in attachment relationships. By observing infants and their caretakers, they created a research paradigm termed the "Strange Situation." This paradigm assessed infants' responses to separation from, and reunion with, caretakers. They identified three distinct patterns or styles of infant attachment: secure, anxious-ambivalent, and anxious-avoidant. In line with predictions derived from Bowlby's theory, these three styles appeared to have a close association with differences in caretaker warmth and responsiveness (Ainsworth et al., 1978; Egeland & Farber, 1984). Research has clearly shown that individuals differing in these styles have numerous cognitive, motivational, and emotional regulation differences (see for reviews Reis & Patrick, 1996; Shaver, Collins, & Clark, 1996).

*Internal working models of attachment.* Although Bowlby's child-centered attachment theory concentrated upon behaviour, he acknowledged the need to account for the psychological legacy that children carry from early relationship experiences into later relationships. At that time, cognitive science was an emerging discipline and Bowlby drew from the work of Kenneth Craik (1943, as cited in Bretherton, 1990) who proposed that people carry a model of external reality and of their own possible actions within their heads. Consequently, Bowlby theorized that individuals form mental models of themselves in relation to others. He believed that these "working models" of attachment became internalized and thus were a source of continuity in attachment patterns across the lifespan. These IWMs of attachment consist of generalized expectations, beliefs, and

goals about self, others, and the relation between the two. They are believed to guide how people think, feel, and behave in their relationships. They are assumed to arise out of direct experience in interactions with significant others. Further, IWMs may serve a number of other roles, such as: assisting individuals in organizing and interpreting social information, being used in cognitive processes such as selective perception, memory retrieval, and assimilation of different pieces of information into a coherent whole (Green-Hennessy & Reis, 1998). These mental models have widespread implications for interpersonal functioning and psychological well-being (Green-Hennessy & Reis, 1998).

The manner in which attachment needs are met can affect the development of an individual's view of self and their view of others. One of the fundamental goals of the attachment system is to achieve 'felt security' (Sroufe & Waters, 1977). In the interest of achieving this goal, children are thought to use their day-to-day experiences to develop IWMs about the availability and responsivity of their attachment figures (Bowlby, 1973).

Research examining the attachment bond formed in early childhood has led to increased study of the association between the attachment style developed in infancy and later adolescent and adult interpersonal relationships (e.g., Hazan & Shaver, 1987). It is believed that over time specific attachment-related experiences become incorporated into both an individual's expectations about others and sense of self-worth (Collins, 1996). These IWMs guide the way people perceive, interpret and respond to social interactions.

*Attachment in adulthood.* The majority of attachment research has been overwhelmingly concentrated on the infancy and early childhood periods. This skewed focus has overshadowed the importance of attachment throughout the lifespan. More recently, research suggests that in adolescence attachment functions are transferred to

peers and by young adulthood, often characterize romantic partnerships (Hazan & Zeifman, 1994; Trinke & Bartholomew, 1997). As well, attachment theory has recently been used as a framework for understanding the specific processes through which close relationships in adulthood are influenced by each partner's personal and interpersonal history. IWMs of self and others are central to this approach (Bartholomew & Horowitz, 1991; Collins & Read, 1990; Main, Kaplan, & Cassidy, 1985).

Hazan and Shaver (1987) used attachment working models to understand adult romantic relationships, using Ainsworth et al.'s (1978) tripartite infant attachment classification method. They proposed that early relationships influence adult love relationships and that romantic love itself is a process of becoming attached that shares critical commonalities with child-caretaker attachment. These adult attachment styles were initially defined by three patterns of proximity-seeking and emotional response: (1) secure, (2) anxious-ambivalent, and (3) avoidant (Hazan & Shaver, 1987). Adults with different attachment styles were distinguished in the manner in which they experienced love. Adults with a *secure* attachment style (i.e., low on anxiety about abandonment and low on avoidance of closeness) are described as being comfortable with closeness, are interdependent, and having more trusting relationships. Adults who are preoccupied with being intimate, are insecure about others' responses to this desire, and have a strong fear of rejection have an *anxious-ambivalent* style. The *avoidant* style reflects those who are uncomfortable with closeness, are excessively autonomous, and prefer to keep an emotional distance. Hazan and Shaver's (1987) research is valuable in beginning to understand the connection between early attachment and adult love experiences.

*Models of self versus models of others.* To better understand attachment styles beyond infancy and early childhood, Bartholomew and Horowitz (1991) described an expanded four-category model of adult attachment based on the concept of IWMs. Bowlby (1973) identified two main features of these IWMs of attachment: 'Model of *Other*' and 'Model of *Self*.' In Bartholomew and Horowitz's (1991) conceptualization, models of self can range from positive (self is viewed as worthy of love and attention) to negative (self is viewed as unworthy). Likewise, models of other can range from positive (other is viewed as trustworthy, caring, available) to negative (other is viewed as rejecting, uncaring, distant). Through the intersection of dichotomized models of self and models of others, *four* prototypic adult attachment styles were created: secure, preoccupied, dismissing, and fearful (see Figure 1). Each of these four adult attachment styles represents theoretical prototypes or expectations for later social relations (Bowlby, 1973, 1980, 1982).

Individuals with a secure style (i.e., low on anxiety and avoidance) have positive models of self and others, resulting in having a personal sense of worthiness and the expectation that others are generally accepting and responsive to their needs. A *preoccupied* attachment style (i.e., high on anxiety and low on avoidance) implies having negative model of self and a positive model of others. This style reflects having a strong sense of personal unworthiness alongside a positive evaluation of others. A preoccupied style reflects striving for self-acceptance through gaining the approval of valued others through disproportionate closeness in personal relationships, leaving them open to great pain when their intimacy needs are not met. They avoid close involvement with others as a means of protecting themselves against anticipated rejection by others. Bartholomew's

(1990) model is distinct from earlier work since it differentiated two patterns marked by a hesitancy to become intimate with others, achieved through splitting Hazan and Shaver's (1987) *avoidant* group into *dismissing* and *fearful* styles. The bottom cells of Figure 1 represent these two forms of adult avoidance. People who display an avoidant style are less likely to disclose personal information (Bartholomew & Horowitz, 1991; Feeney & Noller, 1990; Mikulincer & Nachshon, 1991), and appear to use defensive strategies to suppress their affective reactions (Mikulincer & Orbach, 1995). A fearful pattern (i.e., high anxiety and avoidance) is defined by negative models of self and others. The fearful style reflects having a sense of personal unworthiness and the expectation that others will be rejecting and are untrustworthy; therefore they tend to avoid involvement with others to protect against anticipated rejection. Finally, individuals with a dismissing style (i.e., low anxiety and high avoidance) have a personal sense of self-worthiness but have a negative disposition towards others, and they maintain a sense of independence and invulnerability by avoiding relationships with others. This category involves a more complicated strategy in which attachment needs are denied or, according to Bowlby, the attachment system is deactivated.

*Anxiety versus avoidance dimensions.* Other researchers, on the other hand, have anchored the two dimensions underlying the four attachment style prototypes proposed by Bartholomew and Horowitz (1991) by emphasizing the level of anxiety (or dependence) versus the level of avoidance (Brennan, Clark, & Shaver, 1998). The anxiety dimension refers to anxiety about being abandoned. The avoidant dimension reflects avoidance of closeness. Thus, Brennan et al. (1998) essentially conceptualized the two underlying dimensions, in Figure 1, in terms of social response styles. On the horizontal

axis, the *anxiety* response style varies from low (self-esteem is largely internalized and does not require external validation) to high (self-esteem requires others' ongoing acceptance). Thus, the model of self is linked with the degree of anxiety or dependency experienced in close relationships; that is, it relates to how one views oneself. The positivity of the Model of Others indicates the degree to which others are generally expected to be available and supportive. The vertical axis can be conceptualized behaviourally as reflecting the degree of avoidance of close contact with others (Bartholomew, 1990). Thus, the model of others is linked with the tendency to seek out or avoid closeness in relationships; that is, being either independent or socially withdrawn. For instance, one can use these two dimensions to characterize the fearful attachment style as individuals who have high anxiety and high avoidance. Those who are low on both anxiety and avoidance are categorized as "secure." Those who are high on anxiety and low on avoidance have a preoccupied style. Those who are low on anxiety and high on avoidance have a dismissing style.

#### *Social-Cognitive Background of Attachment Research*

The focus in the attachment and close-relationships literature appears to be turning towards investigating the cognitive processes mediating differences in relationship behaviour and outcomes (e.g., Baldwin, Fehr, Keedian, Seidel, & Thomson, 1993; Collins & Read, 1994; Main, Kaplan, & Cassidy, 1985; Shaver, Collins, & Clark, 1996). Interpersonal relationships moderate the way in which information is processed, suggesting that social cognition theories must necessarily consider the relational context of social perception and thought if they are to completely and accurately describe the operation of social cognition in natural circumstances (Reis & Downey, 1999). Despite

the study of cognition in the context of close relationships being relatively new, social-cognitive theory and research (see Fiske & Taylor, 1991) have focused for some time now on how people organize information about themselves and others. *Social cognition* refers to one's knowledge and beliefs about interpersonal and social matters.

The internal representation of relationships with significant others seems like an ideal topic for a social cognitive analysis, concentrating on how information about one's interpersonal experiences is perceived, interpreted, stored, and recalled. Nonetheless, social cognitive research has been relatively unsuccessful in tackling this issue, by focusing instead on isolated features of social perception (e.g., social scripts) for everyday situations (Baldwin, 1992).

*Information processing tradition.* A basic assumption in social cognition is that universal principles of information processing apply to both non-social and social information (i.e., to the domain of relationships). This approach has emphasized the study of how information is stored or represented in memory, how and when it is retrieved, and how it influences processing of new information. This information-processing approach has created a dynamic, multicomponent understanding of relationship beliefs and expectations (Reis & Downey, 1999).

Memory researchers have conceptualized a trichotomous memory stage framework consisting of the following sequential processes: *encoding*, *storage*, and *retrieval* (or *recall*). Initially a neural code of the incoming information is created during the process referred to as encoding (i.e., interpreting and taking in of information; Salthouse, 1982). Encoding is an active process in memory and as such one must pay *attention* to information in order to remember it. Attention is a selective process that

involves focusing awareness on a narrowed range of stimuli or events. Storage refers to maintaining the encoded information in memory over time (Salthouse, 1982). Finally, during the third stage of memory processes the information is recovered from memory store; this process is known as recall (Salthouse, 1982).

*Schema processing.* Information stored in memory is generally organized around schemas (Thorndyke, 1984). *Schemas* are cognitive structures that represent knowledge about a concept or type of stimulus that can serve as guides for interpreting information. For example, college students have schemas for what professors' offices look like (e.g., desk, table, chairs, books). People are more prone to remember things that are consistent with their schemas than things that are not (e.g., Brewer & Treyns, 1981). Schemas assist in 'top-down' or conceptually driven processing, which refers to processes strongly influenced by one's organized prior knowledge (Fiske & Taylor, 1991). Schemas allow integration of new information with what one already knows and allow one to make inferences about new facts.

There are two classes of explanations used to explain the primacy of important text information: processes operating at the time of encoding and processes which act at a later time when the information is recalled and used. Evidence appears to validate the distinction between the two processes.

Anderson and Pichert (1978) illustrated the importance of schemas in influencing memories at the level of *recall*. Readers recalled different information from a passage as a function of whether they were told to assume the role of a homebuyer or a burglar. When subjects shifted to a new perspective and then recalled the story again they tended to recall information that was consistent with the new perspective (i.e., that activated a



new schema). Thus, a shift in schemas allowed one to recall details not easily retrieved from the other perspective. Their findings cannot be explained in terms of an encoding process since the shift in perspective took place after participants read and recalled once before. Rather, a retrieval process appeared to be involved. In Anderson and Pichert's (1978) study schemas acted as filters only at the level of recall, not encoding. However, they note that based on previous research there is good reason to believe that schemata also influence encoding or storage processes. Anderson and Pichert's (1978) findings revealed that recall and encoding processes operate independently.

In the current study, participants' attachment schemas were presumably activated by reading stressful interpersonal situations. It was expected that participants' schemas would direct them to attend to certain types of information rather than others and to preferentially recall information that was consistent with their attachment schema for the target figure in the vignette. For instance, Cantor and Mischel (1979) illustrated the organizing influence of *person schemas*. In their study, subjects read lists of adjectives describing certain types of people (e.g., extroverts). When given a recognition test at a later time, they falsely recognized words that were not on the original list but that were strongly consistent with the category of person described. This illustrated the directive influence of a schema when processing information.

The theory behind schematic models usually assumes that when new information appropriately matches a certain schema, that particular schema is retrieved from memory and is used to "go beyond the information given" and "fill in the blanks" in appraising a new person and forming expectations for interaction (Reis & Downey, 1999).

*Information processing and automatic processing (e.g., reading time).* A popular focus within the study of information processing is on *automatic processes*. Automatic processes refer to those processes that relate new stimuli to stored mental representations relatively quickly, efficiently, and often outside of conscious awareness (Bargh, 1996; Wegner & Bargh, 1998). Researchers in the area of close relationships often agree that automatic processes are particularly likely to operate in close relationships for two reasons. First, automatic processes appear to be activated by cues that prompt well-practiced routines of the kind typical in the daily life of established couples (Berscheid, 1994). Second, automatic processing generally takes place when individuals are feeling emotionally aroused or threatened, a type of processing called *hot cognition* by Metcalfe and Mischel (1999), who differentiate it from cool rational processing. The “hot” system is believed to produce impulsive, reflexive, and stimulus-driven behaviour (Reis & Downey, 1999). Hot cognition can have a *ballistic* characteristic referring to the inability of some processes to stop once they have begun. The systematic study of automatic processes at work in close relationships is merely beginning (Reis & Downey, 1999).

Schematic encoding functions from the *earliest moments of perception*. People immediately use age, race, sex, attractiveness, job titles, and prior trait descriptions (“You’ll like her; she’s very funny”) to form impressions. For instance, White participants recognized positive stereotypic words (“smart,” “ambitious,” “clean”) faster when they were preceded by “whites” than by “blacks” (Gaertner & McLaughlin, 1983).

The current study used reading time as a possible index of automatic processes to explore the nature of organization of knowledge structures about anxiety and avoidance dimensions of attachment (models of self and others).

*Information processing and attachment research.* Attachment research has consistently found differences in the way individuals with different attachment styles process information (Collins, 1996; Bartholomew & Horowitz, 1991; Pietromonaco & Barrett, 1997; Miller & Noirot, 1999.) IWMs are assumed to develop out of one's attachment schemas and to serve as cognitive maps helping people traverse the social world. These IWMs of attachment presumably direct attention, encoding, and recall for attachment-related events. Since individuals with different attachment styles have different views of self and others, they are believed to interpret similar situations quite differently (Collins, 1996; Pietromonaco & Barrett, 1997). These authors suggested that individuals likely interpret social interactions through their attachment-related expectations and beliefs.

Miller and Noirot (1999) described two models for the encoding and recall of information. The current study tested these two models. The first model (i.e., "Schema-Consistent Processing") predicted that attachment style facilitated recall by assimilating *belief-congruent* information. Attachment schemas should therefore bias attention toward schema-consistent events and facilitate the encoding and retrieval of information that is consistent with one's attachment experiences and expectations (Miller & Noirot, 1999).

The second model (i.e., "Processing Limits") predicted that attachment-related memories might place a strain on one's information processing resources. This model purported that if a larger network of related attachment memories were activated, more resources would be consumed. Thus, for example, to the extent that information processing resources are limited, individuals who are high on anxiety and avoidance, high on anxiety and low on avoidance, or low on anxiety and high on avoidance (i.e.,

individuals with a relatively larger pool of negative relationship memories; “insecures”) should experience more interference than individuals who are low on anxiety and low on avoidance when processing negative interpersonal situations during the vignette task. Thus, the two information processing models predicted opposite patterns of findings.

These two information processing models are of particular relevance to the current study. Miller and Noiroi's (1999) study investigated whether memories of supportive and rejecting experiences in close relationships would activate attachment-related information. Four attachment styles (Bartholomew, 1990) were used to categorize the beliefs that individuals have about themselves and significant others in their environments (i.e., secure, dismissing-avoidant, preoccupied/ambivalent, fearful-avoidant). Undergraduate students provided self-ratings on each of these attachment styles. Several weeks later, to activate their attachment beliefs, half were randomly assigned to write an account of either a supportive or rejecting friendship experience. Half of the participants then read a story in which the main character experienced an equal number of positive and negative events in a close friendship. After reading the story they solved a set of figural analogies and then responded to a cued recall test about the story. The other half read the story after solving the analogies, but before writing their friendship accounts.

Miller and Noiroi's study (1999) tested whether two competing information processing models could explain the effects of priming the attachment system using a memory paradigm: (1) 'Schema-Consistent Processing' model, what they referred to as the 'General model' and (2) 'Processing-Limits' model, what they referred to as the 'Attachment-related limits on information processing model.'

The first and simplest model, Schema-Consistent Processing, predicted that general attachment models would have facilitated memory for attachment-related events by having assimilated belief-congruent information more readily than belief-incongruent information (Baldwin, 1992; Collins & Read, 1994). This means that generally, individuals who are secure (i.e., low on anxiety and avoidance) would favour the recall of positive relationship events while fearful individuals (i.e., high on anxiety and avoidance), preoccupied individuals (i.e., high on anxiety and low on avoidance), or dismissing individuals (i.e., low on anxiety and high on avoidance) would favour the recall of negative relationship events.

The Schema-Consistent Processing model predicted, for example, that when individuals assimilated material that was belief-congruent (e.g., an individual who is low on anxiety and avoidance read about positive relationship events), they would assimilate this information quickly and would have incorporated it in a manner which is consistent with their initial attachment schemas. In relation to the present study, this would be reflected in the qualitative measures of recall (i.e., emotional intensity of thoughts about self and others, recall of feelings, recall of thoughts about self and others) and in average reading times.

Evidence for the Schema-Consistent Processing model came primarily from Belsky, Spritz, and Crnic (1996), who compared recall for positive and negative events in a puppet show among 3-year olds whose attachment styles had been assessed at twelve months. Although they found no significant differences in the children's visual attention to positive and negative events, they found substantial differences in their subsequent recall of these events. Securely (i.e., congruent with low on anxiety and low on

avoidance) attached children recalled positive events more accurately than negative ones, whereas insecurely attached children recalled negative events more accurately than positive ones.

A related result among adults came from experimental work by Baldwin et al. (1993), who found that reaction times to recognize positive versus negative interpersonal outcomes were consistent with attachment style. The researchers administered a decision task of attachment cognition and found, for instance, that when given the context stem 'If I trust my partner then my partner will...', secure individuals (i.e., low on anxiety and avoidance) were quicker in identifying words that represented positive outcomes (e.g., 'care'), whereas avoidant participants (i.e., high on anxiety and avoidance, or low on anxiety and high on avoidance) were quicker in identifying words that represented negative outcomes (e.g., 'hurt').

Results from Miller and Noiroi's (1999) experiment provided evidence showing that the activation of attachment-related memories influenced story encoding and that the nature of the effect depended upon participants' attachment styles. Their results yielded substantial evidence for the Schema-Consistent Processing model. The more fearfully attached (i.e., high on attachment anxiety and avoidance) the participant, the better they recalled negative story events when either supportive or rejecting memories had been activated. The more securely attached (i.e., low on anxiety and avoidance) the individual, the better they recalled positive events, but only when rejecting memories were primed beforehand. These results occurred only when attachment-related memories were activated before rather than after the story. In terms of accounting for differences between fearful (i.e., high on anxiety and avoidance) and secure (i.e., low on anxiety and

avoidance) individuals it is important to keep in mind that attachment beliefs might be easier to activate among those who are chronically concerned about their relationships, and preoccupied (i.e., high on anxiety and low on avoidance) and fearfully (i.e., high on anxiety and avoidance) attached individuals are by definition chronically more concerned. Benign attachment memories might be all that is needed to activate their attachment schemas, whereas more threatening, negative memories might be needed to activate the schemas of the secure (i.e., low on anxiety and avoidance) individuals (Simpson & Rholes, 1994).

The second model (i.e., Processing-Limits) stated that activation of attachment-related memories can strain one's information processing resources. This theory is based on the notion that supportive or rejecting relationship memories can activate other, related memories (i.e., "spreading activation") and thus consume information processing resources. Negative memories can raise the accessibility of other negative memories which can then interfere with one's ability to process information. This model proposes that the larger the network of experiences activated, the more resources would be consumed.

Miller and Noiro (1999) found partial support for the Processing-Limits model. They theorized that secure individuals (i.e., low on anxiety and avoidance) have a larger pre-existing pool of positive relationship experiences in memory and fewer negative ones. Therefore, when primed with negative attachment situations they would not experience much interference with their memory processes because only a small network of experiences would be activated (i.e., low consumption). However, their findings did not support this prediction (i.e., Schema-Consistent Processing model was supported

instead, as discussed above). Miller and Noiro (1999) also theorized that preoccupied (i.e., high on anxiety and low on avoidance) or fearful (i.e., high on anxiety and avoidance) individuals would have the largest stores of negative relationship experiences in memory. These individuals are highly focused on thinking about attachment relationships and have difficulty suppressing thoughts of negative relationship experiences. They would be likely to get 'flooded' with relationship concerns when negatively primed and would therefore experience high consumption of information processing resources and thus a strain on their ability to process information. Fearfully attached individuals (i.e., high on anxiety and avoidance) were predicted to experience information processing deficits when negatively primed since they have large networks of negative relationship memories. Therefore, activation of this large network was thought to consume information processing resources. The findings from Miller and Noiro (1999) found that fearful attachment (i.e., high on anxiety and avoidance) can limit information-processing capacity. When these individuals were reminded of negative relationship experiences, they seemed to have difficulty concentrating on other things. This association between fearfully attached individuals with impaired performance came through on an attachment-unrelated task (i.e., solving figural analogies), when participants were primed by rejecting memories before carrying out the task. Further, Miller and Noiro (1999) expected the suppression of rejecting memories typically associated with individuals holding a dismissing attachment style (i.e., low on anxiety and high on avoidance) to release information-processing resources and thus, they would have superior information processing. Most of their evidence for attachment-related effects on information processing capacity came from scores on the attachment unrelated



task (i.e., figural analogies test) rather than from the recall task which would have been of greater relevance to the present study.

### *The Current Study*

The purpose of the current study was to explore how young adults (i.e., 18-35 years old) with different attachment styles differed in their processing of social information (e.g., attention and memory recall). The study examined how attachment style (as assessed by dimensions of anxiety and avoidance) was associated with information processing of interpersonal vignettes that focused on negative relationship events. Information processing was measured by average reading time of the vignettes (i.e., a measure of attention) and measures assessing various aspects of the recall tasks (i.e., number and emotional intensity of thoughts about self and others, thoughts about self, thoughts about others, as well as emotions (e.g., dysphoria) felt by themselves related to the stressful interpersonal vignettes. The details of the recall task measures will be described below.

The study began with asking participants to fill out a questionnaire package concerned with close interpersonal situations and well-being. Subsequently, participants were asked to read and respond to computer-presented vignettes involving negative relationship events. Finally, participants completed a recall task referred to as the Vignette Recall Task.

Anxious and avoidant dimensions of attachment were predicted to supply a context that would influence the manner in which participants would process the information they were presented with during the vignette task. In accordance with Bowlby's (1982) attachment theory, because of the negative nature of the vignettes, it

was hypothesized that the vignettes would serve as stressors and thus would activate participants' attachment systems.

It was hypothesized that in the present study participants would differ in information processing (i.e., as assessed by attention and recall measures) as a function of their levels of anxiety and avoidance dimensions of attachment. In reference to Miller and Noirots (1999) study, the present study allowed us to test the Schema-Consistent Processing model for five of the outcome variables and to test the Processing-Limits model for the outcome variable of *Average Reading Time*. The Schema-Consistent Processing model has relatively stronger empirical support (e.g., Miller & Noirots, 1999) compared to the Processing-Limits model which has received much less support.

Six main categories of outcome variables were assessed in the present study: 1) Valence of Thoughts about Self; 2) Valence of Thoughts about Others; 3) Valence of Emotions about Self; 4) Number and Emotional Intensity of Thoughts about Others; 5) Number and Emotional Intensity of Thoughts about Self; and 6) Average Reading Time of Vignettes. In addition, a measure of the Average Number of Words across the three recalled vignettes (or if only two were recalled then across those two vignettes) participants wrote on the Vignette Recall Task was recorded. However, Word Count was not considered a key outcome variable since it was not an entirely clear measure as it may have reflected a variety of factors, including: extensiveness of what participants retained from the vignette task; general verbal skills; amount of interest in a topic; the level of motivation to write about a topic; emotional involvement with the topic; or social desirability/demand characteristics of the study. The content of one's word count can

widely vary and thus it would be foolish to assume that having a higher word count necessarily implies something about the valence of the thoughts and/or emotions.

*Valence of Thoughts about Self* (i.e., negative, mentioned, or a combination of positive and negative) supplied a measure of Models of Self in the context of negative relationship events. *Valence of Thoughts about Others* (i.e., negative, mentioned, or a combination of positive and negative) supplied a measure of Models of Others in the context of negative relationship events. *Valence of Emotions Relating to Self* (e.g., dysphoria) was a measure of participants' recall of the feelings they had after imagining themselves in the vignette situations. *Number and Emotional Intensity of Thoughts about Others* expressed on the Vignette Recall Task reflected a combination of the emotional intensity of participants' recalled thoughts about Others along with a measure of the quantity of statements made reflecting thoughts about others. *Number and Emotional Intensity of Thoughts about Self* reflected a combination of the emotional intensity of participants' recalled thoughts about self along with a measure of the quantity of statements made reflecting thoughts about self. *Average Reading Time* of vignettes referred to the mean of the reading time participants used across the eight vignettes.

Specific hypotheses for each of the criterion variables are discussed below. The results for all of the criterion variables were hypothesized based upon the Schema-Consistent Processing model except for the 'Average Reading Time' variable. The 'Average Reading Time' variable was likely the best test of pitting the two models against each other: Processing Limits model versus the Schema-Consistent Processing model. We can assume that there was an upper limit on reading time (i.e., the instructions said to read quickly which means that there was a limit to their time since the vignettes

changed automatically if time ran out; whereas all of the other outcome measures which were from the recall task did not have an upper limit since the instructions did not say to work quickly). According to the Schema-Consistent Processing model participants would be able to process information that is consistent with their schemas more quickly and thus assimilate this information with greater ease. Thus, for individuals who were high on attachment anxiety (e.g., negative self in relationships) and for those who were high on attachment avoidance (e.g., negative others) they would be expected to have read the vignettes more quickly (i.e., shortest reading times) since the vignettes would be schema-consistent (i.e., the interactions were negative). The Processing-Limits model stated that the negative information presented in the computer vignette task would elicit material which strained one's information processing system as a result of spreading activation of similar memories. Such spreading activation would be predicted to interfere with their information processing systems due to the abundance of similar relationship memories. Thus, individuals who were high on either anxiety or avoidance were hypothesized to experience an interference effect. Thus, these individuals were predicted to read the vignettes more slowly (i.e., longest reading times) in order to deal with the interfering information.

Figure 1 displayed the presence of two dimensions which can be thought of in terms of anxiety and avoidance dimensions of attachment. Individuals who are low on the avoidance dimension of attachment have more positive views of others. Individuals who are high on the avoidance dimension have more negative views of others. Individuals who are low on the anxiety dimension of attachment have more positive views of self. Individuals who are high on the anxiety dimension have more negative views of self.

The Schema-Consistent Processing model predicted that information which is schema-consistent will be assimilated to one's schemas and processed more quickly than information which is schema-inconsistent. The information presented in the computer task was negative relationship information in which the reader's relationship needs have been frustrated. Thus, this information would have been experienced as schema-consistent for individuals who were high on anxiety (i.e., negative view of self). Consequently, these individuals would have assimilated the negative information in the Vignette Task more quickly due to its schema-consistent nature. Thus, such individuals were predicted to display (in relation to individuals low on anxiety): a) greater recall of 'negative thoughts about self'; b) greater recall of descriptive 'negative emotions' about self; and c) greater 'number and emotional intensity of thoughts about self.' As for individuals who were high on avoidance (i.e., negative view of others) the information in the Vignette Task would have been experienced as schema-consistent. Consequently, they would have assimilated the negative information more quickly due to its schema-consistent nature. Thus, such individuals were predicted to display (in relation to individuals low on avoidance): a) greater recall of 'negative thoughts about others'; and b) greater 'number and emotional intensity of thoughts about others.'

## Method

### *Participants*

Participants were one hundred and thirty-two (66 men, 66 women) undergraduate students, ranging in age from 18 to 35 years ( $M = 24.4$  years;  $SD = 3.93$ ) from a large, English-speaking university in Montréal. Participants were English-speaking and had resided in Canada for five years or more and a few participants were from the United States. Participants varied in ethnicity. On the questionnaires, participants could endorse 1 or more items to indicate ethnic background. 72.7% endorsed one item. The ethnic/racial composition for those who endorsed one item was: 38.5% English Canadian, 8.3% French Canadian, 16.7% Other European, 8.3% Asian, 6.3% Middle Eastern, 4.2% African, 1.0% South West Asian, and 16.7% defined as Other. Of the total sample, 22.7% endorsed 2 items. 4.5% endorsed 3 items. For those who endorsed 2 or 3 items, the majority were a mixture of English Canadian with Other European or English Canadian (i.e., 30%) and French Canadian and Other European all together (i.e., 50%).

The majority of participants came from middle-class families, based on reported occupation of father and mother (Hollingshead, 1975). Mean socio-economic status (SES) was 4.2 out of 9.0 ( $SD = 2.91$ ) for mothers (characteristic of smaller business owners, skilled manual workers, craftsmen, and tenant farmers) and 5.3 out of 9.0 ( $SD = 2.8$ ) for fathers (characteristic of clerical and sales workers, small farm and business owners) (Hollingshead, 1975).

### *Procedure*

Participants were recruited using posters and sign-up tables placed throughout Concordia University asking for participation in a study on their interpersonal

relationships (see Appendix A). Prior to beginning the study, participants signed an informed consent form listing all of their rights as participants (see Appendix B). The study began with asking participants to fill out a questionnaire package concerned with close interpersonal relationships and well-being (see Appendix C). The second portion of the study involved completing the computer vignette task focused on stressful hypothetical interpersonal situations (see Appendix D). Subsequently, participants were asked to complete the Vignette Recall Task (see Appendix E). The Vignette Recall Task asked participants to remember what they thought and felt about these situations when they completed the computer task.

The questionnaire package served as a prime for the computer vignette task by allowing participants to reflect on important relationship memories in their lives. Each participant read eight vignettes during the vignette computer task. The computer task activated participants' negative thoughts and emotions since all of the vignettes focused on negative relationship experiences.

Following completion of the study, participants were paid fifteen dollars, debriefed about the purpose and hypotheses of the study, and had the opportunity to inquire about concerns or questions they might have had. Participants were reassured of the confidentiality of the data. Confidentiality of individual results was assured through the use of a participant numbering system (i.e., making each individual's results anonymous).

The vignettes were presented by a computer program called E-Prime (Schneider, Eschman, & Zuccolotto, 2002), which is a windows-based application that allowed the order of the vignettes and the target figures within each vignette to be randomized. E-

Prime recorded the answers to each question, as well as the reading and reaction times associated with each response.

### *Materials*

*Vignettes.* A series of eight vignettes depicting hypothetical interpersonal situations designed to activate the attachment system were presented on a computer. These vignettes focused on four target figures (i.e., Mom, Dad, romantic partner, same-sex best friend) representing the most common significant attachment figures. Each target figure appeared twice in the series of eight vignettes. The target figures were randomized across the vignettes. Both the order of presentation of the four target figures and the order of presentation of the eight vignettes were randomized. Thus, the target figure was independent of the vignette's content. Prior to the presentation of these eight vignettes, participants were administered a practice vignette focused on a sibling relationship in order to familiarize them with the task. An example of a vignette is:

Imagine that you are going to a wedding reception with your romantic partner. When the two of you get there, your romantic partner leaves you for the entire night to go talk with other guests. You do not know these people, and your romantic partner doesn't introduce you. You don't know anyone else at the reception.

*Measure of attention.* Participants' average reading times across the eight vignettes was used as an overall measure of attention to negative interpersonal events, averaged across all four target figures.

*Vignette Recall Task.* Participants were sequentially asked to recall any three of the vignettes, one at a time. For each of the recalled vignettes, participants were asked to describe the situation or problem, to indicate who was involved, to describe thoughts they had about the other person, and their thoughts and feelings experienced during and



following the situation. Each subject's Vignette Recall Task was read and coded based on a coding system developed by Dudeck, Heimrath, Markiewicz, Doyle, and Kemp (2002) (see Appendix F). Participants' recall was coded for the valence of their thoughts about self, valence of their thoughts about others, valence of emotions relating to self, number and emotional intensity of their thoughts about self and number and emotional intensity of their thoughts about others.

*Coding of Vignette Recall Task.* The following measures assessed recall: a) Average Word Count; b) Valence of Thoughts about Self; c) Valence of Thoughts about Others; d) Valence of Emotions about Self; e) Number and Emotional Intensity of Thoughts about Self; and f) Number and Emotional Intensity of Thoughts about Others.

As for the 'Valence of Thoughts about Others', statements that participants wrote on the Vignette Recall Task about 'Other' (i.e., the target figure in question) were coded as negative (e.g., "He is untrustworthy"), positive (e.g., "He meant well."), mentioned (i.e., they wrote *any* type of thought about others as opposed to not writing any thought about others at all), or a combination of positive and negative (e.g., "He's completely selfish. But, I know he feels bad about it."). As for the 'Valence of Thoughts about Self', statements that participants wrote on the Vignette Recall Task about 'Self' were also coded as negative, positive, mentioned, or a combination positive and negative. For further elaboration, the category of *mentioned* referred to writing thoughts about self or others which fell into at least one of the following categories: positive, negative, or a combination of positive and negative. In other words, participants received a score of '0' if they did not mention any type of thought about self or others or they received a score of '1' if they wrote some sort of thought about self or others. This variable was an

exploratory measure that we intended on following up if it proved to be interesting. Thus, scoring of the valence categories (positive, negative, combination, mentioned) was not done in a mutually exclusive manner. For instance, participants could have a score in the positive thoughts category which would then constitute a score in the mentioned category.

'Valence of Emotions about Self' were coded as mentioned (i.e., if they mentioned any type of emotion it was scored as '1'; if they did not mention any type of emotion at all they received a score of '0') and dysphoria (i.e., emotions pertaining to anxiety, depression, and hostility were summed together). This variable assessed emotions in reference to how participants recalled feeling about themselves only.

'Number and Emotional Intensity of Thoughts about Self' and 'Number and Emotional Intensity of Thoughts about Others' were each rated on a 6-point Likert-type scale (1 = *neither intense nor numerous*, 6 = *very intense and numerous*). The scale was collapsed to a 3-point scale in order to improve inter-judge reliability.

A second judge coded 20% of the recall tasks to measure inter-rater reliability. Percent agreement for the inter-rater reliability was assessed for 'Valence of Thoughts about Others' (87%), 'Valence of Thoughts about Self' (79%), 'Valence of Emotions about Self' (93%), 'Number and Emotional Intensity of the Thoughts about Others' (77%) and 'Number and Emotional Intensity of Thoughts about Self' (76%). In each instance, for all of the cases that were not agreed upon, the two coders came to resolutions on the appropriate scores.

To avoid rater drift, raters' coding sheets were checked for inter-rater reliability each time approximately 12% of the sample had been coded. When the composite

reliability of the two raters fell below 80% agreement, the two coders discussed their coding discrepancies before continuing to code the next portion.

### *Measures*

A *General Information Questionnaire* was used to gather general background information about the participants. Questions focused on information about age, sex, grades in university, mother tongue, parents' marital status, socioeconomic and cultural/ethnic background, level of education of parents, number of years lived in Canada, and the people with whom they were currently living.

*The Experiences in Close Relationships Questionnaire* (ECR; Brennan, Clark, & Shaver, 1998) was used to measure generalized attachment style to other people. The ECR is a 36-item self-report instrument tapping the dimensions of attachment anxiety and attachment avoidance. Participants rated the degree to which each item described their feelings in close relationships on a 7-point Likert-type scale ranging from 1-7 (1=*disagree strongly*; 7 = *agree strongly*). Eighteen items tapped anxiety (e.g., "I worry about being abandoned.") and 18 items tapped avoidance (e.g., "I don't feel comfortable opening up to others."). This questionnaire concerned how participants generally experience their closest relationships, instead of just one type of relationship, or at one point in time. According to the ECR scoring guidelines, some items were reverse-scored to yield total scores reflecting attachment anxiety and avoidance, respectively. The reliability and construct validity of the two subscales have been demonstrated (Brennan et al., 1998). In the present study, both the anxiety scale ( $\alpha = .87$  for both women and men) and the avoidance scale ( $\alpha = .88$  for both women and men) showed good internal consistency. The intercorrelation between the anxiety scale and the avoidance scale was  $r$

= .39 ( $p < .01$ ). In the present study, the mean anxiety score was 3.79 ( $SD = .92$ ) and the mean avoidance dimension was 4.10 ( $SD = .52$ ). Fraley, Waller, and Brennan (2000) conducted an item-response theory analysis of four commonly used self-report measures of adult attachment. They found that from these four measures the ECR scales had the best psychometric properties.

*Multiple Affect Adjective Checklist-Revised (MAACL-R; Zuckerman & Lubin, 1985)* is a mood and feelings adjective checklist that was used as a measure of general mood. The MAACL-R required participants to check off the adjectives that describe how they generally feel. This 58-item mood checklist consists of 5 scales: anxiety (10 items), depression (12 items), hostility (15 items), positive affect (21 items), and sensation seeking (12 items). In the present study, the anxiety subscale was used ( $\alpha = .73$ ). The anxiety, depression, and hostility scales are moderately and significantly correlated (i.e.,  $r^2$ 's = .40 to .60), suggesting the possibility for discriminant validity (Zuckerman & Lubin, 1985).

*Stress Intensity Level.* Following the presentation of each vignette, participants were asked to respond to, "How stressful would you find this event?" on a 7-point Likert-type scale (1= *not at all*; 7= *extremely*). These ratings served as a manipulation check to assess whether the hypothetical vignettes were situations which participants saw as stressful and thus relevant to attachment system activation.

## Results

Data analysis was conducted using frequencies and regressions on SPSS.

Descriptive statistics were conducted to evaluate the normality of the distribution and to determine the presence of outliers. Z-standardized scores were created for all of the variables; outliers were dropped from analyses (i.e.,  $\pm 3$  standard deviations from the mean). If data was skewed, the appropriate transformations were made (e.g., square root for positive skew). Data were combined across the four target figures.

### *Manipulation Check*

Prior to testing of the hypotheses, a manipulation check was conducted to determine whether the vignettes activated the participants' attachment systems, as they were designed to do. This manipulation check involved looking at the stress level ratings from reading the vignettes. It was believed that the more stressful the vignettes, the greater the likelihood that the attachment system was activated.

The average stress rating was in the moderate range ( $M = 4.62$ ,  $SD = 1.01$ ) for the 131 participants that were assessed (one subject's data was lost). The *range* was from 2-7 and the *mode* was 5. These findings suggest that the vignettes were viewed as moderately stressful and thus likely activated participants' attachment systems.

### *Data Analysis*

Initially, bivariate correlations were calculated to look at the associations between all outcome variables (see Table 1). This study used hierarchical regression analyses. All of the regressions used the same set of steps and variables. In the first step three control variables were entered (i.e., Age, Sex, and Anxious Mood from the MAACL-R). Next, the attachment variables from the ECR were entered (i.e., Anxiety, Avoidance, Anxiety x

Avoidance). In cases where control variables did not significantly predict outcome variables nor interacted with attachment predictors they were dropped from subsequent regression analyses. In cases where controls did significantly predict outcome variables, they were retained in the analyses. The third step contained all relevant two-way interactions. Only findings which were statistically significant are reported.

### *Intercorrelation Table*

Preliminary analyses also included intercorrelating the outcome variables to determine the extent to which it was justified to keep them as distinct variables. Most of the outcome variables were not highly correlated. Thus, it was justified to keep them as distinct variables. However, the 'Thoughts about Others - Combined Positive and Negative' variable and the 'Positive Thoughts about Others' variable were highly correlated ( $r = .85, p < .01$ ) and thus these two variables were collapsed into one variable entitled 'Positive Thoughts about Others' (see Table 1). When participants recalled more 'Positive Thoughts about Others' they also recalled more 'Positive and Negative Thoughts about Others Combined.' When there was a 'Combination of Positive and Negative Thoughts about Others' it is probable that this variable is more closely associated with 'Positive Thoughts about Others' than it was with 'Negative Thoughts about Others' based upon the pattern of correlations. Both of these variables were positively skewed and thus each variable was transformed with the use of the square root function. Even after transforming these variables they both remained skewed such that 'Positive Thoughts about Others' had a skew of 6.49 while 'Positive and Negative Thoughts about Others Combined' had a skew of 7.22.

As mentioned, there were thirteen criterion variables assessed in the current study grouped into 6 categories: 1) Average Reading Time of vignettes; 2) Valence of Thoughts about Self (i.e., negative, positive, mentioned, combination of positive and negative); 3) Valence of Thoughts about Others (i.e., negative, positive, mentioned, combination of positive and negative); 4) Valence of Emotions about Self (i.e., mentioned, dysphoria); 5) Number and Emotional Intensity of Thoughts about Others; and 6) Number and Emotional Intensity of Thoughts about Self. In addition, a measure of the Average Word Count on the Vignette Recall Task was recorded but was not considered a key outcome variable since it was not a clear measure.

#### *Predictions to Average Reading Time and Average Word Count*

*Average reading time on the vignette task.* Anxious Mood was entered on the first step of this regression as a control variable. Results indicated that Anxious Mood was marginally significant ( $R^2 = .03, p = .05; \beta = .17, sr^2 = .03, p = .05$ ) (see Table 2). The more anxious an individual, the slower they tended to read the vignettes. There was a trend in the third step ( $R^2 = .08, \Delta R^2 = .03, p < .10$ ) with the interaction between Anxious Mood and Attachment Anxiety being marginally significant in its prediction of Average Reading Time ( $\beta = .18, sr^2 = .03, p < .10$ ). Since the overall equation was not significant on step 3 the following interpretation of this interaction should be seen as merely exploratory work which might have a benefit in aiding future research on reading time.

In order to interpret the trend to Anxious Mood by Anxious Attachment interaction two regressions were performed using a median split procedure. The median of Anxious Mood was 3. Thus, one of the regressions selected for participants who had high levels of Anxious Mood as defined by having scores on Anxious Mood which were

greater than or equal to 3. The other regression selected for participants who had low levels of Anxious Mood as defined by having scores on Anxious Mood which were less than 3.

The first regression selecting for high levels of Anxious Mood entered in Attachment Anxiety as the predictor of Average Reading Time. The results revealed a trend ( $R^2 = .06, p < .10$ ) with the unique contribution of Anxious Attachment being a trend ( $\beta = .25, sr^2 = .06, p < .10$ ). The results were not significant when lower levels of Anxious Mood was selected and Attachment Anxiety was entered into the regression as the predictor. These results suggest that at higher levels of Attachment Anxiety, those who have higher levels of Anxious Mood tend to take longer (i.e., are slower) to read the vignettes, on average. These marginally significant results are consistent with the Processing Limits model.

*Average word count on the vignette recall task.* Results indicated that Sex was a significant predictor ( $R^2 = .05, p = .01; \beta = -.22, sr^2 = .05, p = .01$ ) (see Table 3). Females had greater Average Word Counts on the Vignette Recall Task than males. The second step was not significant ( $R^2 = .09, \Delta R^2 = .04, p > .10$ ). The third step was significant ( $R^2 = .14, \Delta R^2 = .05, p < .05$ ) with the Attachment Avoidance by Sex interaction as marginally significant ( $\beta = .16, sr^2 = .02, p < .10$ ).

In order to interpret this interaction two regressions were performed. In the first regression only male participants were selected and there was one step, which was significant ( $R^2 = .09, p < .05$ ) in which Attachment Avoidance was significant ( $\beta = .30, sr^2 = .09, p < .05$ ). Thus, males who were higher on avoidance had greater Average Word Counts. In the second regression which selected for females only, Attachment Avoidance



was not significant ( $R^2 = .02, p > .10; \beta = -.14, sr^2 = .02, p > .10$ ). There were not any pre-existing hypotheses regarding word count since it was a measure which may have reflected a number of different processes.

*Predictions to Recalling Thoughts about Others on the Vignette Recall Task*

*Negative thoughts about others.* Results indicated that Sex was significant ( $R^2 = .06, p < .01; \beta = -.24, sr^2 = .06, p = .01$ ) contributing uniquely (see Table 4). Females recalled more 'Negative Thoughts about Others' than males.

*Mentioning thoughts about others.* The first step of this regression entered in Sex as a control variable. Results indicated the first and second steps were not significant. But, the third step was significant ( $R^2 = .11, \Delta R^2 = .09, p < .001$ ) with the interaction between Attachment Anxiety and Sex as a unique predictor, accounting for all of the variance in this step ( $\beta = .33, sr^2 = .09, p = .001$ ) (see Table 5).

In order to interpret the Attachment Anxiety by Sex interaction two regressions were performed; one regression for males and the other for females. In the regression selecting for males there was a trend ( $R^2 = .05, p < .10; \beta = .22, sr^2 = .05, p < .10$ ) for Attachment Anxiety such that more anxious males tended to Mention Thoughts about Others more often than less anxious males. For females, Attachment Anxiety was significant ( $R^2 = .10, p = .01; \beta = -.31, sr^2 = .10, p = .01$ ) such that females who were lower on Attachment Anxiety were more likely to Mention Thoughts about Others on the Vignette Recall Task. Thus, the pattern appeared to be opposite for females and males.

*Combination of positive and negative thoughts about others.* Since none of the control variables were significant they were dropped from analyses. Results indicated that the step including the attachment variables was significant ( $R^2 = .06, p < .05$ ) with

Attachment Anxiety marginally significant as a unique predictor ( $\beta = -.26$ ,  $sr^2 = .06$ ,  $p = .10$ ) (see Table 6). This indicated that the higher the level of Attachment Anxiety, the less likely one was to report a combination of Positive and Negative Thoughts about Others. Since the combined positive and negative variable was highly correlated with the Positive Thoughts about Others variable, the combined variable likely largely reflects expressing Positive Thoughts about Others. Thus, the participants who were more anxiously attached had greater difficulty thinking about the positive aspects of significant figures in their lives; whereas, participants who were less anxiously attached had significantly more thoughts about others which were mostly positive in tone. These results reflect a 'crossover' effect where model of *self* predicted to recall of thoughts about *others*.

*Number and emotional intensity of thoughts about others.* The results were not significant ( $R^2 = .04$ ,  $p > .10$ ).

#### *Predictions to Recalling Thoughts about Self on the Vignette Recall Task*

*Negative thoughts about self.* Since none of the control variables were significant they were dropped from analyses. Results indicated that the step including the attachment variables was significant ( $R^2 = .08$ ,  $p < .05$ ) with Attachment Anxiety being a unique predictor ( $\beta = .27$ ,  $sr^2 = .06$ ,  $p = .01$ ) (see Table 7). As predicted by the Schema-Consistent Processing model, those who had higher Attachment Anxiety recalled content in which they saw themselves more negatively.

*Number and emotional intensity of thoughts about self.* Results indicated that the step was significant ( $R^2 = .15$ ,  $p < .05$ ) with Attachment Avoidance being marginally significant ( $\beta = .26$ ,  $sr^2 = .05$ ,  $p < .10$ ) (see Table 8). Those who were more avoidant tended to report a greater number and more emotionally intense thoughts about self on

the Vignette Recall Task. These findings represent a ‘cross-over’ effect in the sense that we had predicted that high avoidance would have predicted to negative thoughts about *others* not about *self*.

*Predictions to Emotions Recalled on the Vignette Recall Task*

*Mentioning emotions.* The first step of this regression entered in Sex as a control variable. Results indicated that the first step was a trend ( $R^2 = .02, p < .10$ ) with Sex as a unique trend ( $\beta = -.15, sr^2 = .02, p < .10$ ) (see Table 9). Females tended to be more likely to Mention Feelings on the Vignette Recall Task. The second step was not significant. The third step was significant ( $R^2 = .08, \Delta R^2 = .05, p < .05$ ) with the interaction of Attachment Avoidance by Sex being a unique predictor ( $\beta = .23, sr^2 = .05, p < .05$ ).

In order to interpret the Attachment Avoidance by Sex interaction two regressions were performed; one for males and one for females. The first regression run on males only was not significant ( $R^2 = .03, p > .10$ ). The regression run on females was significant ( $R^2 = .09, p < .05$ ) with Attachment Avoidance uniquely significant ( $\beta = -.30, sr^2 = .09, p < .05$ ). Females who were lower on Attachment Avoidance were significantly more likely to Mention Feelings on the Vignette Recall Task.

*Dysphoria.* The first step of the regression predicting to feelings of dysphoria was significant ( $R^2 = .09, p < .001$ ) with Sex coming through significantly ( $\beta = -.30, sr^2 = .09, p < .001$ ). Females tended to recall more feelings of dysphoria on the Vignette Recall Task than males. No other steps were significant.

## Discussion

We explored whether processing of negative interpersonal information was consistent with the Schema-Consistent Processing model for five of the outcome variables and whether it was consistent with the Processing Limits versus Schema-Consistent Processing models for the Average Reading Time variable. The Schema-Consistent Processing model predicted that attachment style would facilitate recall by assimilating *belief-congruent* information. The Processing Limits model predicted that attachment-related memories would interfere with one's information processing resources upon activation of similar memories.

Results for Average Reading Time of the vignettes revealed that the combination of high Anxious Mood and high Attachment Anxiety tended to predict to participants taking longer to read the vignettes. But, the overall equation was not significant thus these analyses are discussed for the purpose of providing direction to follow-up studies assessing Average Reading Time. This finding, although only a trend, supports the hypothesis set out by the Processing Limits model regarding individuals with high levels of Attachment Anxiety. In particular, individuals who were high on both Attachment Anxiety and Anxious Mood may have experienced a strain on their information processing systems due to the interference from the similar material that was activated in their memories from reading the information in the Vignette Task. Consequently, these individuals tended to take the longest to read the vignettes presumably due to needing more time to process the information.

Findings revealed that females wrote significantly more than males on the Vignette Recall Task. More relevant, males who were higher on Attachment Avoidance

wrote significantly more than males who were lower on this dimension. Since word count is not a clear measure it is not possible to determine whether these findings support the Schema-Consistent Processing model or not. Avoidant individuals generally do not express their feelings directly but rather they tend to do so indirectly. So, it is possible that simply writing more may reflect an escape from expressing feelings or it may represent a release of some of the avoidant individuals' feelings.

Average Word Count likely reflects information that was processed as well as other potential factors. Essentially, it may be a measure of how much information from the Vignette Task participants remembered and/or how much they were motivated to write. This makes it difficult to interpret the results revealing that more avoidant males had greater average word counts. It is important to realize that the act of writing does not necessarily imply they were writing about their feelings. Rather, writing could have been a displacement of any feelings they had onto a more neutral activity.

In regards to expressing one's thoughts about significant *others* (i.e., attachment figures) on the Vignette Recall Task, individuals lower on Attachment Anxiety (i.e., positive model of self) had significantly more thoughts about *others* which were both positive and negative in tone compared to individuals higher on Attachment Anxiety. This finding raises two issues. First, there was a 'crossover' effect since participants who were low on anxiety (i.e., positive view of self) had more balanced thoughts about *others* rather than about *self* (more about this later). Second, it is important to keep in mind that due to the high positive correlation between 'Positive and Negative Thoughts about Others' with 'Positive Thoughts about Others,' the combined 'Positive and Negative Thoughts about Others' outcome measure likely reflects expressing positive thoughts

about others. Individuals lower on Attachment Anxiety had more 'Positive and Negative Thoughts about Others' (i.e., essentially this refers to 'Positive Thoughts about Others') than individuals who were higher on Attachment Anxiety. Thus, individuals with positive views of self who read about negative relationship events recalled thoughts about others that were largely positive in nature but also may have reflected more balanced views of others (i.e., positive and negative thoughts). This may suggest that individuals who have "healthier" views of themselves and others are more willing to endorse a more balanced and realistic view of others by viewing both the positive and negative aspects; doing so is not accounted for by the Schema-Consistent Processing model or the Processing Limits model.

There were not hypotheses about 'Mentioning Thoughts about Others' since interpretation of this outcome measure is ambiguous. It is not clear whether participants wrote thoughts about others which were positive, negative, or a combination of those. However, this variable was assessed to determine whether further attention should be paid to interpreting it in future studies. Findings revealed that females who were lower on Attachment Anxiety were more likely to mention thoughts about others, and, there was a trend for males with higher levels of Attachment Anxiety to be more likely to mention thoughts about others. Therefore, the findings indicated the presence of a gender effect wherein the pattern of "defense" differed for males and females in regards to expressing one's thoughts about significant attachment figures in one's life. Due to the ambiguity of this measure it is not entirely clear what these findings imply. The results for 'Number and Emotional Intensity of Thoughts about Others' expressed on the Vignette Recall Task were not significant.

In regards to expressing one's thoughts about themselves on the Vignette Recall Task, those who had higher levels of Attachment Anxiety saw themselves more negatively. These findings yielded the sole evidence for the Schema-Consistent Processing model. Since highly anxious individuals have pools of relationship memories that largely consist of *negative* thoughts about themselves, the (negative) vignettes invoked a schema-consistent reaction. Thus, the information in the vignette task was assimilated with greater ease. It is interesting to strike a comparison that the analyses for recall of both positive and negative thoughts about *self*, as opposed to thoughts about others, on the Vignette Recall Task were not significant. Thus, individuals who were low on Attachment Anxiety were more willing to endorse a more balanced and realistic view of others but they did not do so for with memories involving themselves.

There was a trend (within an overall significant step) for those who were higher on Attachment Avoidance to recall a greater number and more emotionally intense thoughts about self on the Vignette Recall Task. This finding was surprising in that it displayed a 'crossover' effect; avoidant participants expressed greater emotional intensity in their recalled memories only when recalling thoughts about *self* as opposed to recalling thoughts about *others*, in spite of their negative others schema. These findings were not consistent with either processing model.

Females tended to have more dysphoric feelings expressed on the Vignette Recall Task, in comparison to males. Another finding, related to recall of emotions, was that females tended to be more likely than males to 'Mention Emotions about Self' on the Vignette Recall Task. However, bearing in mind the ambiguities related to interpreting the variable 'Mentioning Thoughts about Others,' similar problems arise when

attempting to interpret the variable 'Mention Emotions about Self.' Further analyses revealed that females who were lower on Attachment Avoidance were significantly more likely to mention emotions on the Vignette Recall Task. There were not hypotheses about 'Mentioning Emotions about Self' since interpretation of this outcome measure is ambiguous. It is not clear what the valence of these recalled emotions were (e.g., depressed, anxious, hostile).

It is interesting to note that there were two instances in which 'crossover' effects were displayed (i.e., findings relating to recall of positive and negative thoughts about others and findings relating to emotionally intense thoughts about self). It is possible that since memory moves along affective tracks when participants recalled negative thoughts about self, for instance, it may have activated memories of negative thoughts about others. After all, if humans encode information along similar emotional valences, it would be feasible that during a recall task one could slip from negative thoughts about others to negative thoughts about self, and vice versa.

Overall, there was one finding which provided support for the Schema-Consistent Processing model and a hint of support for the Processing Limits model. Further, in order to explain the 'crossover' effects, we propose that they are best explained by a broader definition of the Schema-Consistent Processing model. This broader definition would, for instance, predict that when individuals high on anxiety or avoidance think about relationship events in a negative way they would recall this information in a more generalized negative manner. Thus, this model suggests the possibility that anxiety does not simply tap into one's model of self exclusively. Rather, high levels of anxiety may tap into negative expectations about relationships in general (i.e., model of self and model



of others) rather than just being limited to tapping into one's negative model of self. The same logic would apply to high levels of avoidance tapping into one's negative model of others and one's negative model of self.

#### *Limitations and Future Research*

There were a number of limitations in the present study. One of the limitations has to do with the outcome variables assessed in this study. In some cases (e.g., Number and Emotional Intensity of Thoughts about Self) the inter-rater reliability ratings were less than adequate (i.e.,  $M = 76\%$ ). Future research should try to replicate the findings for 'Number and Emotional Intensity of Thoughts about Self' and 'Number and Emotional Intensity of Thoughts about Others' by improving upon the inter-rater reliability ratings. Further, there was ambiguity as to what some of the outcome measures tapped. For instance, 'Average Word Count' was not a clear measure and in fact the correlation table suggested that it was related to Number and Emotional Intensity of recall of Thoughts about Self as well as about Others. The more emotionally intense participants were when expressing their thoughts about others and self on the Vignette Recall Task, the more they wrote. In future studies, rather than using the overall word count as an outcome variable it would be beneficial to use the word count measure with respect to specific statements. For instance, how many words were written with respect to thoughts about self, thoughts about others, and emotions? This would be a more objective means of getting at the positive and negative thoughts about self and others.

Further limitations included the use of a relatively small sample size; some of the trends might have become significant with a larger sample and with more power.

Future research should address the following question: did participants with varying attachment histories differ in recall because they differentially encoded the negative events while reading the vignettes or because they differed in ability to retrieve memories of negative events?

Since some features of internal working models may function outside of conscious awareness (Bretherton, 1985; Main et al., 1985), future research should address the use of a multi-method approach including an in-depth interview that may reveal underlying internal working models. Further, future research should examine longitudinal data in order to understand the developmental transitions in one's schemas about self and others that take place over the lifespan. This would address the role one's schemas have upon processing of interpersonal information and how this might be modified over time. Also, future research should use well-established cognitive tasks to assess participants' information processing. Finally, future research should address the effects on recall of using a vignette task containing both negative and positive relationship information.

#### *Summary*

This study offered a rare glimpse into young adults' perceptions of their attachment relationships with important figures in relation to their ability to process and recall interpersonal information, using a variety of measures. The results support a variety of processes accounting for how internal working models of attachment influence interpretation of negative interpersonal situations. The presence of attachment-related effects in this study should not be trivialized. With repeated experience, even small biasing effects can strengthen attachment schemas thus influencing one's thoughts, behaviours, and feelings in interpersonal relationships. One could expect that once a habit

is broken new interpersonal patterns could then develop and new associations could form, thereby leading to changes in schema activation.

## References

- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Ainsworth, M. S. (1989). Attachments beyond infancy. *American Psychologist*, *44*, 709-716.
- Anderson, R. C., & Pichert, J. W. (1978). Recall of previously unrecalable information following a shift in perspective. *Journal of Verbal Learning and Verbal Behavior*, *17*, 1-12.
- Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin*, *112*, 461-484.
- Baldwin, M. W., Fehr, B., Keedian, E., Seidel, M. & Thomson, D. W. (1993). An exploration of the relational schemata underlying attachment styles: Self-report and lexical decision approaches. *Personality and Social Psychology Bulletin*, *19*, 746-754.
- Bargh (1996). Automaticity in social psychology. In E. T. Higgins, & A. W. Kruglanski, (Eds.), *Social psychology: Handbook of basic principles* (pp. 169-183). New York: Guilford Press.
- Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, *7*, 147-178.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, *61*, 226-244.

- Belsky, J., Spritz, B., & Crnic, K. (1996). Infant attachment security and affective-cognitive information processing at age 3. *Psychological Science, 7*, 111-114.
- Berscheid, E. (1994). Interpersonal relationships. *Annual Review of Psychology, 45*, 79-129.
- Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. New York: Basic Books.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss: Sadness and depression*. New York: Basic Books.
- Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. London: Routledge.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson, & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: The Guilford Press.
- Bretherton, I. (1985). Attachment theory: Retrospect and prospect. *Monographs of the Society for Research in Child Development, 50*, 3-35.
- Bretherton, I. (1990). Open communication and internal working models: Their role in the development of attachment relationships. In R.A. Thompson (Ed.), *Nebraska symposium on Motivation, 1988: Socioemotional development. Current theory and research in motivation, Vol. 36* (pp. 57-113). Lincoln, NE: University of Nebraska Press.

- Brewer, W. F., & Treyens, J. C. (1981). Role of schemata in memory for places. *Cognitive Psychology, 13*, 207-230.
- Cantor, N., & Mischel, W. (1979). Prototypes in person perception. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 3-52). San Diego, CA: Academic Press.
- Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behaviour. *Journal of Personality and Social Psychology, 71*, 810-832.
- Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58*, 644-663.
- Collins, N. L., & Read, S. J. (1994). Cognitive representations of attachment: The structure and function of working models. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood* (pp. 53-90). London: Kingsley.
- Dudeck, M. R., Heimrath, N., Markiewicz, D., Doyle, A. B., & Kemp, D., (2002, unpublished). *Coding manual for Vignette Recall Task*. Unpublished manuscript. Concordia University in Montreal, Quebec, Canada.
- Egeland, B., & Farber, E. A. (1984). Infant-mother attachment: Factors related to its development and changes over time. *Child Development, 55*, 753-771.
- Feeney, J. A., & Noller, P. (1990). Attachment style as a predictor of adult romantic relationships. *Journal of Personality and Social Psychology, 58*, 281-291.
- Fiske, S. E., & Taylor, S. E. (1991). *Social cognition*. New York: McGraw Hill.

- Fraley, R. C., & Shaver, P. R. (1997). Adult attachment and the suppression of unwanted thoughts. *Journal of Personality and Social Psychology*, 73, 1080-1091.
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78, 350-365.
- Gaertner, S.L., & McLaughlin, J.P. (1983). Racial stereotypes: Associations and ascriptions of positive and negative characteristics. *Social Psychology Quarterly*, 46, 23-30.
- Green-Hennessy, S. & Reis, H. T. (1998). Openness in processing social information among attachment types. *Personal Relationships*, 5, 449-466.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511-524.
- Hazan, C., & Zeifman, D. (1994). Sex and the psychological tether. In K. Bartholomew & D. Perlman (Eds.), *Advances in personal relationships* (Vol. 5, pp. 151-178). London: Jessica Kingsley.
- Hollingshead, A. B. (1975). *Four factor index of social status*. New Haven, CT: Yale University, Department of Sociology.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, 50, 66-104.
- Metcalf, J., & Mischel, W. (1999). A hot/cool system analysis of delay of gratification: Dynamics of willpower. *Psychological Review*, 106, 3-19.

- Mikulincer, M., & Nachson, O. (1991). Attachment styles and patterns of self-disclosure. *Journal of Personality and Social Psychology, 61*, 321-331.
- Mikulincer, M & Orbach, I. (1995). Attachment styles and repressive defensiveness: The accessibility and architecture of affective memories. *Journal of Personality and Social Psychology, 68*, 917-925.
- Miller, J. B., & Noiro, M. (1999). Attachment memories, models and information processing. *Journal of Social and Personal Relationships, 16*, 147-173.
- Pietromonaco, P. R., & Barrett, L. F. (1997). Working models of attachment and daily social interactions. *Journal of Personality and Social Psychology, 73*, 1409-1423.
- Potter, M. C., Stiefbold, D., & Moryadas, A. (1998). Word selection in reading sentences: Preceding versus following contexts. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 24*, 68-100.
- Reis, H. T., & Downey, G. (1999). Social cognition in relationships: Building essential bridges between two literatures. *Social Cognition, 17*, 97-117.
- Reis, H. T., & Patrick, B. C. (1996). Attachment and intimacy: Component processes. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 523-563). New York: Guilford Press.
- Rogers, T. B., Kuiper, N. A., Kirker, W. S. (1977). Self-reference and the encoding of personal information. *Journal of Personality and Social Psychology, 35*, 677-688.
- Salthouse, T. A. (1982). *Adult Cognition: An experimental psychology of human aging*. New York: Springer-Verlag.



- Schneider, W., Eschman, A., & Zuccolotto, A. (2002). *E-Prime user's guide*. Pittsburgh: Psychology Software Tools Inc.
- Shaver, P. R., Collins, N., & Clark, C. L. (1996). Attachment styles and internal working models of self and relationship partners. In G. J. O. Fletcher & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 25-61). Mahwah, NJ: Erlbaum.
- Simpson, J.A., & Rholes, W. S. (1994). Stress and secure base relationships in adulthood. In Bartholomew, K., & D. Perlman (Eds.), *Attachment processes in adulthood. Advances in personal relationships, Vol. 5* (pp. 181-204). London: Jessica Kingsley Publishers.
- Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development, 48*, 1184-1199.
- Thorndyke, P. W. (1984). Applications of schema theory in cognitive research. In J. R. Anderson & S. M. Kosslyn (Eds.), *Tutorials in learning and memory*. San Francisco: W. H. Freeman.
- Trinke, S. J., & Bartholomew, K. (1997). Hierarchies of attachment relationships in young adulthood. *Journal of Social and Personal Relationships, 14*, 603-625.
- Wegner, D. M., & Bargh, J. A. (1998). Control and automaticity in social life. In D. T. Gilbert, Fiske, S. T., & Lindzey, G. (Eds.), *The handbook of social psychology, Vol. 2 (4<sup>th</sup> ed.)* (pp. 446-496). New York: McGraw-Hill.
- Zuckerman, M., & Lubin, B. (1985). *Manual for the multiple affect adjective check list revised*. San Diego, CA: Educational and Industrial Testing Service.

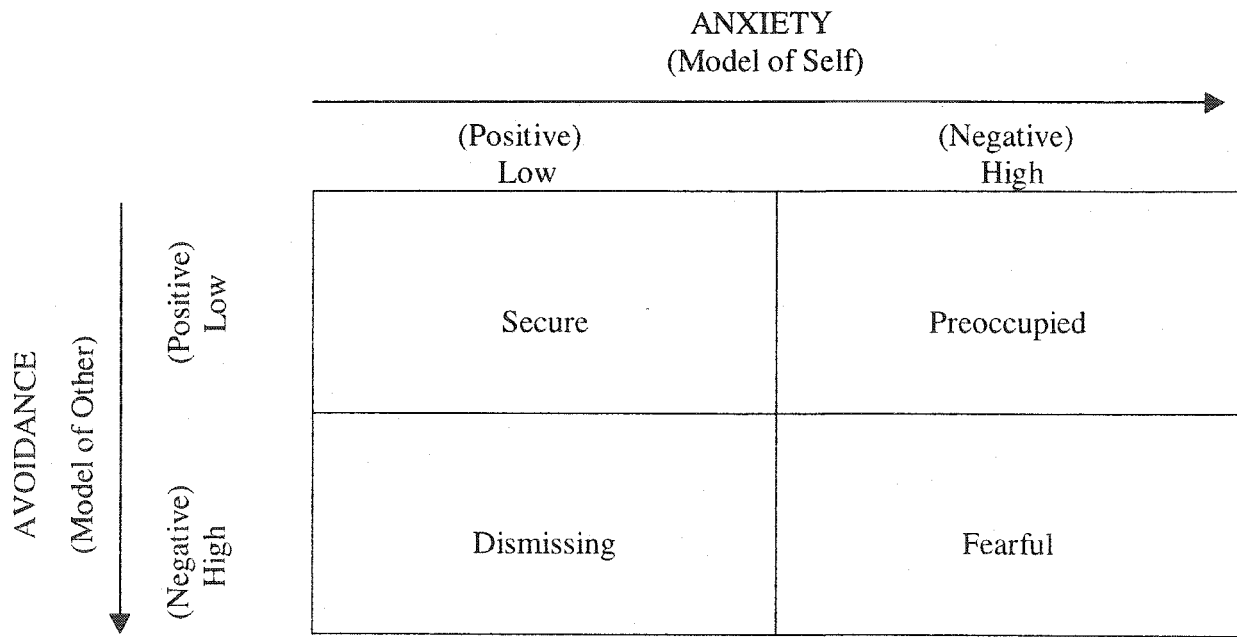


Figure 1. The four attachment styles that evolve from the positive or negative “working models” of self and others.<sup>1</sup>

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<sup>1</sup>Adapted from Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61, 226-244.

Table 1

*Intercorrelations Between Outcome Variables*

	1	2	3	4	5	6	7	8	9	10	11	Inter-rater Reliability
1. Reading Time	--	-.02	.06	.09	.11	.16	-.06	.00	-.20	.21	.06	n/a
2. Word Count		--	-.02	.24**	.30*	.23**	.14	.27**	.25**	.32**	.18*	100%
3. Dysphoria			--	.08	.25*	.08	.14	-.02	-.12	.10	-.01	93%
4. Number & Emotional Intensity of Thoughts about Others				--	.43**	.30**	.05	-.07	-.05	-.06	-.06	76%
5. Number & Emotional Intensity of Thoughts about Self					--	.13	.22	-.25*	.07	.15	-.15	77%
6. Thoughts about Others Negative						--	.12	-.03	-.12	.03	-.06	87%
7. Thoughts about Self Negative							--	-.00	.06	.13	.33**	79%
8. Thoughts about Self Positive								--	.20	.06	.57**	79%
9. Thoughts about Others Positive									--	.85**	.04	87%
10. Thoughts about Others Positive & Negative										--	-.01	87%
11. Thoughts about Self Positive & Negative											--	87%

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

Table 2

*Summary of Hierarchical Regression Analysis for Variables Predicting Average Reading*

*Time of Vignettes (N = 126)*

Variable	$R^2$	$\Delta R^2$	$\beta$
Step 1	.03 <sup>+</sup>	--	
Anxious Mood			.17 <sup>+</sup>
Step 2	.05	.02	
Attachment Anxiety			.02
Attachment Avoidance			.09
Anxiety x Avoidance			.10
Step 3	.08	.03	
Anxious Mood x Att't Anxiety			.18 <sup>+</sup>
Anxious Mood x Att't Avoidance			-.12

*Note.* \* $p \leq .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>+</sup> $p < .10$ .

Table 3

*Summary of Hierarchical Regression Analysis for Variables Predicting Average Word Count on the Vignette Recall Task (N = 130)*

Variable	$R^2$	$\Delta R^2$	$\beta$
Step 1	.05**	--	
Sex			-.22**
Step 2	.09	.04	
Anxiety			-.19*
Avoidance			.14
Anxiety x Avoidance			-.03
Step 3	.14*	.05*	
Att't Anxiety x Sex			.12
Att't Avoidance x Sex			.16 <sup>+</sup>

*Note.* \* $p < .05$ . \*\* $p \leq .01$ . \*\*\* $p < .001$ . <sup>+</sup> $p < .10$ . Male = 1, Female = 0.

Table 4

*Summary of Hierarchical Regression Analysis for Variables Predicting Negative Thoughts about Others on the Vignette Recall Task (N = 129)*

Variable	R <sup>2</sup>	ΔR <sup>2</sup>	β
Step 1	.06**	--	
Sex			-.24**
Step 2	.07	.01	
Attachment Anxiety			.07
Attachment Avoidance			-.10
Anxiety x Avoidance			.06
Step 3	.10	.03	
Att't Anxiety x Sex			.19*
Att't Avoidance x Sex			-.07

*Note.* \* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p < .001$ . † $p < .10$ .

Table 5

*Summary of Hierarchical Regression Analysis for Variables Predicting Mentioning Thoughts about Others on the Vignette Recall Task (N = 130)*

Variable	$R^2$	$\Delta R^2$	$\beta$
Step 1	.01	--	
Sex			-.09
Step 2	.02	.01	
Attachment Anxiety			-.05
Attachment Avoidance			.02
Anxiety x Avoidance			.07
Step 3	.11***	.09***	
Att't Anxiety x Sex			.33***
Att't Avoidance x Sex			-.01

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p \leq .001$ . + $p < .10$ .

Table 6

*Summary of Hierarchical Regression Analysis for Variables Predicting Positive and Negative Thoughts about Others on the Vignette Recall Task (N = 130)*

Variable	R <sup>2</sup>	ΔR <sup>2</sup>	β
Step 1	.06*	--	
Anxiety			-.26**
Avoidance			.03
Anxiety x Avoidance			.05

*Note.* \* $p < .05$ . \*\* $p \leq .01$ . \*\*\* $p < .001$ . † $p < .10$ .



Table 7

*Summary of Hierarchical Regression Analysis for Variables Predicting Negative*

*Thoughts about Self on the Vignette Recall Task (N = 130)*

Variable	R <sup>2</sup>	ΔR <sup>2</sup>	β
Step 1	.08*	--	
Anxiety			.27**
Avoidance			.01
Anxiety x Avoidance			-.01

*Note.* \* $p < .05$ . \*\* $p \leq .01$ . \*\*\* $p < .001$ . † $p < .10$ .

Table 8

*Summary of Hierarchical Regression Analysis for Variables Predicting Number and Emotional Intensity of Thoughts about Self on the Vignette Recall Task (N = 64)*

Variable	$R^2$	$\Delta R^2$	$\beta$
Step 1	.15*	--	
Attachment Anxiety			.14
Attachment Avoidance			.26 <sup>+</sup>
Anxiety x Avoidance			.15

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>+</sup> $p < .10$ .

Table 9

*Summary of Hierarchical Regression Analysis for Variables Predicting Mentioning Emotions on the Vignette Recall Task (N = 130)*

Variable	$R^2$	$\Delta R^2$	$\beta$
Step 1	.02 <sup>†</sup>	--	
Sex			-.15 <sup>†</sup>
Step 2	.04	.02	
Attachment Anxiety			-.13
Attachment Avoidance			.08
Anxiety x Avoidance		-.02	
Step 3	.08*	.05*	
Att't Anxiety x Sex			-.11
Att't Avoidance x Sex			.23*

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>†</sup> $p < .10$ .

Appendix A  
Recruitment Poster



Appendix B

Consent Form

Jan., 2002 (UNDERGRAD)

CONSENT FORM TO PARTICIPATE IN RESEARCH

Name (please print): \_\_\_\_\_

Street Address: \_\_\_\_\_

City and Postal Code: \_\_\_\_\_

Date of Birth: \_\_\_\_\_ Age: \_\_\_\_\_

Check where applicable:

\_\_\_\_\_ I agree to participate in the Relationships and Well-being study conducted by Marcie Dudeck, Dr. Dorothy Markiewicz, and Dr. Anna-Beth Doyle (please sign below).

\_\_\_\_\_ I do not agree to participate.

IF YOU AGREE TO PARTICIPATE, please complete the following:

I have been informed that the purpose of the research is to study young adults' relationships with friends, romantic partners, and parents. Participation will involve about 1 ½ hour of my time, completing questionnaires about friendships, romantic relationships, family relationships, and mood and feelings about myself. I understand that all responses will be confidential to the research team and identified only by number. I understand that I may discontinue participation at any time.

I HAVE READ THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND AGREE TO PARTICIPATE IN THIS STUDY.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Appendix C  
General Information



# GENERAL INFORMATION

56347

Please do not mark in this area

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Order:  1  2  3  4

This information will help us describe the participants in our study.

1. Age:

2. Date of Birth: 

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 / 

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DAY MONTH YEAR

3. Sex:  Female  Male

4. My grades generally average (1-99)   %  
AND letter grade (circle one):  
A+ A A- B+ B B- C+ C C- D F

5. What is your mother tongue (first language)?  
 English  French  Other (specify) \_\_\_\_\_

6. What languages do you speak at home?  
 English  French  Other (specify) \_\_\_\_\_

7. My mom is ( one box):  
 Single  
 Common-law  
 Married  
 Divorced  
 Widowed  
 Other

8. My dad is ( one box):  
 Single  
 Common-law  
 Married  
 Divorced  
 Widowed  
 Other

9. Who lives (~~lived~~) in your house with you?  
( all that apply)

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Mom     | <input type="checkbox"/> Brothers         |
| <input type="checkbox"/> Dad     | <input type="checkbox"/> Romantic Partner |
| <input type="checkbox"/> Stepmom | <input type="checkbox"/> Roommate(s)      |
| <input type="checkbox"/> Stepdad | <input type="checkbox"/> Spouse           |
| <input type="checkbox"/> Sisters | <input type="checkbox"/> Other            |

10. My ethnic/cultural background is  
( all that apply)

- |   |  |
|---|--|
| <input type="checkbox"/> English Canadian | <input type="checkbox"/> Asian                 |
| <input type="checkbox"/> French Canadian  | <input type="checkbox"/> Middle Eastern        |
| <input type="checkbox"/> Other European   | <input type="checkbox"/> Latin American        |
| <input type="checkbox"/> Aboriginal       | <input type="checkbox"/> South-west Asian      |
| <input type="checkbox"/> African          | <input type="checkbox"/> Other (specify) _____ |

11. I have lived in Canada   years.

12. How well off financially is your family?

- Very well off  
 Quite well off  
 Average  
 Not very well off  
 Not at all well off

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13. Mom's level of education? ( the highest level completed)
- Elementary School                       University - Bachelor's
- High School                                 University - Master's or Doctorate
- CEGEP/Technical School
14. Is mom working now at a paid job?     Yes     No
- If she is not currently working at a paid job, go to question # 19.
15. Does she work:     Full-time (35+ hours a week)    OR     Part-time?
16. What does mom do for a living (e.g., doctor, office manager, factory worker, salesperson)?
- \_\_\_\_\_
17. What are her main activities at work?
- \_\_\_\_\_
18. What industry is this in (e.g. what does the employer sell or make)?
- \_\_\_\_\_
- \_\_\_\_\_
19. If mom is not currently working at a paid job, would you say she was looking for work, keeping house, or unable to work ( one only)?
- Looking for work     Keeping house     Unable to work
20. Dad's level of education? ( the highest level completed)
- Elementary School                       University - Bachelor's
- High School                                 University - Master's or Doctorate
- CEGEP/Technical School
21. Is dad working now at a paid job?     Yes     No
- If he is not currently working at a paid job, go to question # 26.
22. Does he work:     Full-time (35+ hours a week)    OR     Part-time?
23. What does dad do for a living (e.g., doctor, office manager, factory worker, salesperson)?
- \_\_\_\_\_
24. What are his main activities at work?
- \_\_\_\_\_
25. What industry is this in (e.g. what does the employer sell or make)?
- \_\_\_\_\_
- \_\_\_\_\_
26. If dad is not currently working at a paid job, would you say he was looking for work, keeping house, or unable to work ( one only)?
- Looking for work     Keeping house     Unable to work

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## Appendix D

### Experiences in Close Relationships

# EXPERIENCES IN CLOSE RELATIONSHIPS

Please do not mark in this area

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The following statements concern how you feel in your closest relationships (e.g., relatives, best friends, romantic partners, etc). We are interested in how you generally experience your closest relationships, not just in one type of relationship, or at one point in time. Respond to each statement by indicating how much you agree or disagree with it. Mark an  in the box that corresponds to your choice. Use the following scale:

	1	2	3	4	5	6	7
	Disagree Strongly		Neutral/ Mixed				Agree Strongly
1. I prefer not to show people I am close to how I feel deep down.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
2. I worry about being abandoned.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
3. I am very comfortable being close to others.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
4. I worry a lot about my relationships with others.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
5. When others get close to me I pull away.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
6. I worry that people won't care about me as much as I care about them.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
7. I get uncomfortable when others want to be very close.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
8. I worry a lot about losing people I am close to.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
9. I don't feel comfortable opening up to others.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
10. I often wish that other peoples' feelings for me were as strong as my feelings for them.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
11. I want to get close to others, but I keep pulling back.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
12. I want to be completely emotionally close with others, and this sometimes scares them away.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
13. I am nervous when others get too close to me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
14. I worry about being alone.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
15. I am comfortable sharing my private thoughts and feelings with others I am close to.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
16. My wish to be very close sometimes scares people away.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
17. I try to avoid getting too close to people.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

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	1	2	3	4	5	6	7
	Disagree Strongly		Neutral/Mixed			Agree Strongly	
18. I need a lot of reassurance that I am loved by others.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
19. I find it relatively easy to get close to other people.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
20. Sometimes I feel that I make others show more feeling, more commitment.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
21. I find it hard to allow myself to depend on others.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
22. I usually do not worry about being abandoned.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
23. I like not to be too close to others.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
24. If I can't get people I am close with to pay attention to me, I get upset or angry.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
25. I tell people I am close to just about everything.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
26. I find that people don't want to get as close as I would like.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
27. I usually talk about my problems and concerns with people I am close to.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
28. When I don't have any close relationships, I feel a bit anxious and insecure.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
29. I feel comfortable depending on others.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
30. I get frustrated when people I am close to are not around as much as I would like.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
31. I don't mind asking people I am close to for comfort, advice, or help.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
32. I get frustrated if people are not available when I need them.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
33. It helps to turn to people I am close to in times of need.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
34. When people I am close to disapprove of me, I feel really bad about myself.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
35. I turn to people I am close to for many things, including comfort and reassurance.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
36. I feel angry when people I am close to spend time away from me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

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Appendix E

Multiple Affect Adjective Checklist – Revised

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On this page, you will find words which describe different kinds of moods and feelings. Mark an "X" in the boxes beside the words which describe how you generally feel. Some words may sound alike, but we want you to  all the words that describe your feelings. Work rapidly.

## I GENERALLY FEEL ...

- |   |  |
|---|--|
| 1. <input type="checkbox"/> affectionate  | 30. <input type="checkbox"/> joyful        |
| 2. <input type="checkbox"/> afraid        | 31. <input type="checkbox"/> lonely        |
| 3. <input type="checkbox"/> alone         | 32. <input type="checkbox"/> loving        |
| 4. <input type="checkbox"/> angry         | 33. <input type="checkbox"/> lost          |
| 5. <input type="checkbox"/> annoyed       | 34. <input type="checkbox"/> mad           |
| 6. <input type="checkbox"/> complaining   | 35. <input type="checkbox"/> mean          |
| 7. <input type="checkbox"/> critical      | 36. <input type="checkbox"/> miserable     |
| 8. <input type="checkbox"/> cross         | 37. <input type="checkbox"/> nervous       |
| 9. <input type="checkbox"/> cruel         | 38. <input type="checkbox"/> panicky       |
| 10. <input type="checkbox"/> destroyed    | 39. <input type="checkbox"/> peaceful      |
| 11. <input type="checkbox"/> disagreeable | 40. <input type="checkbox"/> pleased       |
| 12. <input type="checkbox"/> discouraged  | 41. <input type="checkbox"/> pleasant      |
| 13. <input type="checkbox"/> disgusted    | 42. <input type="checkbox"/> polite        |
| 14. <input type="checkbox"/> enraged      | 43. <input type="checkbox"/> rejected      |
| 15. <input type="checkbox"/> fearful      | 44. <input type="checkbox"/> sad           |
| 16. <input type="checkbox"/> forlorn      | 45. <input type="checkbox"/> satisfied     |
| 17. <input type="checkbox"/> free         | 46. <input type="checkbox"/> secure        |
| 18. <input type="checkbox"/> friendly     | 47. <input type="checkbox"/> shaky         |
| 19. <input type="checkbox"/> frightened   | 48. <input type="checkbox"/> steady        |
| 20. <input type="checkbox"/> furious      | 49. <input type="checkbox"/> suffering     |
| 21. <input type="checkbox"/> glad         | 50. <input type="checkbox"/> sunk          |
| 22. <input type="checkbox"/> good         | 51. <input type="checkbox"/> tender        |
| 23. <input type="checkbox"/> good-natured | 52. <input type="checkbox"/> tense         |
| 24. <input type="checkbox"/> happy        | 53. <input type="checkbox"/> timid         |
| 25. <input type="checkbox"/> hostile      | 54. <input type="checkbox"/> tormented     |
| 26. <input type="checkbox"/> impatient    | 55. <input type="checkbox"/> understanding |
| 27. <input type="checkbox"/> incensed     | 56. <input type="checkbox"/> warm          |
| 28. <input type="checkbox"/> interested   | 57. <input type="checkbox"/> whole         |
| 29. <input type="checkbox"/> irritated    | 58. <input type="checkbox"/> worrying      |

Appendix F  
Vignette Task



The first situation is for practice

Imagine that your brother or sister forgets your birthday.

1. Imagine that you have a very important decision to make. This decision will have a big effect on your future and you are very anxious about it. You are very concerned about making the best choice by tomorrow's deadline. You go to your \*\*\*\*\* for her advice and to discuss what you should do. You really want her to help. She tells you that she doesn't have the time to talk with you. She says she is too busy.
2. Imagine that you lied to your \*\*\*\*\* about where you were and what you did last night. You believe that your \*\*\*\*\* would not understand or approve of your behaviour if you told her the truth. Your \*\*\*\*\* realizes that you lied to her and confronts you about it. She tells you that she is extremely disappointed that you lied to her and behaved the way you did. She didn't think you were like that.
3. Imagine that you and your \*\*\*\*\* have plans to do something you are really looking forward to. You are very excited about going. At the last minute, your \*\*\*\*\* cancels without telling you why. She just says that she can't go.
4. Imagine that your \*\*\*\*\* is planning a long trip abroad at a time when you can't go along. When you think about your \*\*\*\*\* leaving you start to get concerned. You tell your \*\*\*\*\* you would like her to reschedule at a time when you can go as well. Your \*\*\*\*\* tells you that she won't change her plans.
5. Imagine that you are going to a wedding reception with your \*\*\*\*\*. When the two of you get there, your \*\*\*\*\* leaves you for the entire night to go talk with other guests. You do not know these people, and your \*\*\*\*\* doesn't introduce you. You don't know anyone else at the reception.
6. Imagine that you and your \*\*\*\*\* are not getting along very well lately and that you have been arguing much more than usual. This morning the two of you had another argument. Later, you go out for dinner with your \*\*\*\*\* and a group of other people. Everyone seemed to be having a great time together, laughing and joking around. But, your \*\*\*\*\* ignored you.
7. Imagine that you usually do something together with your \*\*\*\*\* every weekend. But, lately you haven't been able to. You speak to your \*\*\*\*\* to make plans for the weekend. Your \*\*\*\*\* says that you can't spend time together on the weekend or even right now because she is busy.
8. Imagine that you are a member of a social action group. The group is planning a special event. In order to plan your role in one part of this event you need your \*\*\*\*\*'s advice and help. When you ask for it, she refuses to talk about it or to help

you and tells you that she is not happy with your involvement. She doesn't think you should go.

Appendix G  
Vignette Recall Task

Name: \_\_\_\_\_  
I.D. # \_\_\_\_\_

### Memory Task

We described a variety of different situations or problems. In each situation, we asked you what you would think, and how you would feel if the event had actually happened.

Please take a few minutes to try and remember **one of the situations we described** and the thoughts and feelings you had about it.

1a. Briefly describe the situation or problem that you remember.

1b. Who was involved in the situation?

1c. What thoughts did you have about the other person in that situation?

1d. What did you think or feel **during** that situation?

1e. What feelings did you have **after** that situation?

Please take a few minutes to try and remember **another situation** we described and the thoughts and feelings you had about it.

2a. Briefly describe the situation or problem that you remember.

2b. Who was involved in the situation?

2c. What thoughts did you have about the other person in that situation?

2d. What did you think or feel **during** that situation?

2e. What feelings did you have **after** that situation?

Please take a few minutes to try and remember **one more situation** we described and the thoughts and feelings we asked about afterwards.

3a. Briefly describe the situation or problem that you remember.

3b. Who was involved in the situation?

3c. What thoughts did you have about the other person in that situation?

3d. What did you think or feel **during** that situation?

3e. What feelings did you have **after** that situation?

## Appendix H

### Coding Manual for Vignette Recall Task

## Coding Manual for Vignette Recall Task

Dudeck, M. R., Heimrath, N., Markiewicz, D., Kemp, D., & Doyle, A. B. (2002).  
Concordia University, Montréal, Québec, Canada.

### Scoring Instructions

- Read entire page before beginning to score the recalled vignette.
- On top of page (right corner), indicate participant ID number (4 digits) and whether you are scoring the first, second, or third recalled vignette.
- Indicate which vignette the participant has recalled by placing an “x” in the one appropriate box. Check one only (see pp. 8, #1).
- Indicate who is involved in the vignette (besides the self) by placing an “x” in the appropriate box (es). Check all that apply (see pp. 8, #2).

### A) Thoughts about Others

#### i) *Valence of Thoughts about Others (see pp. 8, #3a).*

- Indicate whether participant has written negative, positive, mentioned, or a combination of negative and positive thoughts about others.
- ‘Mentioned’ refers to having mentioned at least one thought about others on the recall task.

Negative Statements: e.g., “She is inconsiderate.”  
“He is not trustworthy.”  
“She was being unfair.”

Positive Statements: e.g., “He meant well”  
“She’ll make it up to me later”  
“He was probably meeting women or enjoying himself”

#### ii) *Number and Emotional Intensity of Thoughts about Others (pp. 8, #3b)*

STEP 1: To assess the ‘emotional intensity’ of the statement a judgment about the qualitative aspect to the statement must be made using general guidelines listed below.

- Low, moderate, or high (see examples that follow).
- If the statement refers to something that is *long-lasting* (e.g., “I’m still feeling this way), it gets a higher value.



'Emotional Intensity'/Qualitative Aspect of Recall:

Low:

- Very little or general reference to thoughts about the other person.

e.g., "Not a very nice friend"  
"She's insensitive"  
"They weren't being considerate"  
"Seemed a bit cold."  
"He was distracted."  
"Typical of him."  
"She's moody/unhelpful/unsupportive/immature/uncaring."  
"She doesn't understand."

Moderate:

- Moderate reference to thoughts about other person, not highly intense.
- Includes "should" statements (e.g., "He shouldn't have lied.")

e.g., "He was unreliable/undependable"  
"He was rude/cold"  
"He didn't care about my feelings"  
"He was tense"  
"He can't satisfy my needs"  
"He's unsupportive/selfish/stubborn/careless/neglectful/close-minded"

High:

- Describes detailed or highly emotional thoughts about the other person.

e.g., "I would think he's not trustworthy, a liar, and a hypocrite"  
"She's a bitch"  
"She always cancels plans."  
"He's a jerk."  
"He's coercive."  
"Very unusual for him."

STEP 2: Assess the 'number'/quantitative aspect of the recalled statements.

- Use the rules below and the quantitative codes scoring sheet to rate on a 6-point Likert-type scale.

## B) Thoughts about Self

### i) Valence of Thoughts about Self (see pp. 8, #4a)

- Indicate whether participant has written negative, positive, mentioned, or a combination of positive and negative thoughts about self.
- 'Mentioned' refers to having mentioned at least one thought about self on the recall task.

Negative Statements: e.g., "Disappointed in myself"  
"I must've done something wrong"

Positive Statements: e.g., "I could do something about it" (i.e., proactive; or optimistic statement)  
"I had no worries that I couldn't spark a few conversations with other people"  
"Excited about meeting new people"

### ii) Number and Emotional Intensity of Thoughts about Self (pp. 8, #4b)

STEP 1: In order to assess the 'emotional intensity' of the statement a judgment about the qualitative aspect to the statement must be made using general guidelines listed below.

- Low, moderate, or high (see examples that follow).
- If the statement refers to something that is *long-lasting* (e.g., "I'm still feeling this way), it gets a higher value.

### 'Emotional Intensity'/Qualitative Aspect of Recall:

#### Low:

- Very little or general reference to thoughts about self.

e.g., "I was being insensitive."  
"I wasn't being considerate."  
"I can do something about it."  
"I can take care of it myself."

#### Moderate:

- Moderate reference to thoughts about self, not highly emotional.
- Includes "should" statements (e.g., "He shouldn't have lied.")

e.g., "I was unreliable"  
"I was rude"  
"I would have to rely on myself."  
"I was being unsupportive."  
"I was irresponsible."  
"I can only depend on myself."  
"I should have made time for her."  
"I was alone."

“I can’t depend on her.”

High:

- Describes detailed or highly emotional thoughts about the other person.

e.g., “I betrayed them.”  
“I am a bitch”

STEP 2: Assess the ‘number’/quantitative aspect to the recalled statements.

- Use the rules below and the quantitative codes scoring sheet to rate on a 6-point Likert-type scale.

**C) Emotions**

*i) Valence of Emotions (see pp. 8, #5a).*

- Check all the emotions that the participant mentions feeling at any point in the description of his/her response to the vignette:

Anxiety: e.g., tense, afraid, worried, nervous, confused, uncomfortable, ashamed, guilt, disbelief, scared, stressful, vulnerable, guilt, embarrassment, shame, concerned, jealousy, surprise, insecurity

Hostility: e.g., angry, irritate, mad, annoyed, resentful, pissed, frustrated, cold, upset

Depression: e.g., bored, sad, rejected, hurt, regret, lonely, discouraged, unloved, crap, shy, shame, regret, disappointed, lost, unwanted, humiliated, abandoned, helpless.

Positive affect: e.g., content, happy, relief, love

Neutral: e.g., indifferent, unemotional, understanding

Dysphoria: Refers to a sum of anxiety, depression, and hostility scores.

\*Note: If participant writes that they felt “alone”, code as negative thought if they write “lonely” code as an emotion.

*ii) Number and Emotional Intensity of Thoughts about Self (pp. 8, #5b)*

STEP 1: Assess the qualitative aspect to the recall.

- Low, moderate, or high.
- If the statement refers to something that is *long-lasting* (e.g., “I’m still feeling this way), it gets a higher value.

## 'Emotional Intensity'/Qualitative Aspect of Recall:

### Low:

- Very little or general, global reference to inner feelings.
- Adjectives have an impact on the intensity ratings such that if they use adjectives that water down the other words (e.g., "I was *slightly* annoyed.") then they belong here.

e.g., "I felt bad"  
"I was slightly disappointed."  
"I was a little upset."

### Includes:

- unhappy                      acceptance                      sorry
- sympathy                      concerned                      resignation
- frustrated                      awkward
- disappointed                      uncomfortable
- annoyed                      understanding
- satisfied                      insensitive
- upset                      misunderstood
- confused                      uncaring
- shy                      hopeful
- uncertainty                      embarrassed
- worried                      interested
- hurt                      bored

### Moderate:

- More than a general indication of emotions, but not highly detailed nor elaborated on.

### Includes:

- angry                      guilt(y)                      unsupportive                      disbelief                      surprised
- lonely                      tense                      irresponsible                      pessimism
- sad                      happy                      undependable                      regret
- selfish                      proud                      stressed                      independence
- rejected                      lonely                      abandoned                      lost
- fear                      mean                      astonishment                      love
- discouragement                      anxious                      frightened                      mad
- mad                      isolated                      helpless                      melancholy
- unloved                      excited                      diffidence                      shame
- nervous                      resentful                      pain                      scared

### High:

- Describes highly intense and personal emotions experienced by themselves. Expressed emotions are strong and unambiguous.
- Also includes the use of adjectives such as "extremely," "very," and "never" before stating a feeling (e.g., "very upset").

- e.g., “I felt used...My friend was never there for me when I needed her. I felt very isolated and completely rejected, and I was sure I couldn’t trust her.”  
“I feel very angry, used, mistreated, and very hurt”  
“I felt very disappointed”  
“Terribly hurt, unloved, not worthy of him”  
“Contempt”  
“Remorse.”

STEP 2: Assess the ‘number’/quantitative aspect to the recall.

- Use the rules below and the common codes scoring sheet in order to rate on a 6-point Likert-type scale.

**E) Total Word Count:**

- Count *all* of the words written by the participant on each page (pp. 8, #7).
- Numbers that appear in the vignettes are counted as words (e.g., “2” = a single word)
- The following symbols are not counted as words in the total word count tabulation:
  - “@” (i.e., “at”)
  - “+” (i.e., “and”)
  - “w/” (i.e., “with”)
  - “b/c” (“because”)

**Quantitative Codes Scoring Sheet for Scoring the Emotional Intensity Ratings**

Total  
Score

1	L	single L = 1
1	LM LL	single M + single L = 1 double L's = 1
2	LLL LLLL MLLL MLLL MLLLL	triple L's = 2 or single M + double or more L's = 2
3	M	single M = 3
3	MM MML LLM LLMM MMLL	single or more M's + single or more L's = 3
4	MMM MMML MMMM MMMLLL MMMMLLL	triple or more M's = 4
5	H	single H = 5
5	HML HL or HM HLLLL MHLM	single H + single or More M's or L's = 5
6	HH	double H's = 6

