Experiential connectedness in children’s attachment interviews: An examination of natural word use

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Abstract
Attachment classification derived from narrative analysis is widely used as a marker of psychological organization. In contrast to this top-down approach, bottom-up, word count–based analyses of narratives are also used to measure psychological states. The current study integrates these 2 approaches by examining their overlap in 93 school-aged children. Participants completed the Child Attachment Interview; transcriptions of this interview were subjected to word count–based linguistic analysis. Compared with secure children, dismissing children showed less and preoccupied children showed more signs of experiential connectedness. Disorganized children decreased in experiential connectedness during loss discussions and used more words related to death during nonloss sections of the interview. Results are discussed in terms of their relevance to attachment and relationship research.

The internal working model of attachment (IWM; Bowlby, 1980), a person’s characteristic relationship schema that develops from interactions with primary caregivers, is widely studied as a factor underlying relational and mental health (Bakermans-Kranenburg & van IJzendoorn, 2009). The field of attachment has a long history of assessing the IWM via narrative discourse. Among adults, IWMs are typically studied using the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996), and a large body of evidence suggests that coding patterns of discourse yield meaningful information about individuals’ psychological adjustment (Fonagy et al., 1996), parenting sensitivity (De Wolff & van IJzendoorn, 1997), romantic relationship quality (Roisman et al., 2007), and emotion regulation (Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993; Kobak & Scerey, 1988). In addition, the last 5 years have witnessed a surge of interest in assessing the narrative discourse of children’s perceptions of relationships with primary caregivers. Largely owing to the development of the Child Attachment Interview (CAI; Target, Fonagy, & Shmueli-Goetz, 2003), researchers can now apply the fundamental elements of AAI scoring to children’s interviews, with emerging evidence suggesting that narrative-based assessments of attachment security have similar validity in childhood and adulthood (Borelli, Crowley, et al., 2010; Borelli, David, Crowley, & Mayes, 2010; Shmueli-Goetz, Target, Fonagy, & Datta, 2008).

The mental representation framework is an attractive top-down paradigm for investigating IWMs of attachment, reactions to interpersonal loss, and emotion regulation when people discuss their relationships and
relationship histories. A complementary and potentially useful way of understanding attachment narratives is from the bottom up, by studying natural word use within the AAI or CAI. Recently, word count–based text analysis has emerged as a powerful tool for investigating the psychological implications of natural language use (Pennebaker, Mehl, & Niederhoffer, 2003; Tausczik & Pennebaker, 2010). The premise of this approach is that people’s natural language use reveals important information about their psychological states (Pennebaker et al., 2003). This methodology uses computer programs to analyze the frequency of different types of words (e.g., first-person pronouns, emotion words) within spoken or written narratives (Tausczik & Pennebaker, 2010). At a rapidly increasing pace, studies are finding that an array of psychological states and traits are subtly yet reliably manifested in the words people use to describe their life experiences. For example, natural word use predicts lying versus truth telling (Newman, Pennebaker, Berry, & Richards, 2003), coping with emotional upheavals (Cohn, Mehl, & Pennebaker, 2004; Pennebaker & Lay, 2002), relationship satisfaction and dissolution (Seider, Hirschberger, Nelson, & Levenson, 2009; Simmons, Chambless, & Gordon, 2008; Simmons, Gordon, & Chambless, 2005; Slatcher & Pennebaker, 2006), depression and suicidal ideation (Bucci & Freedman, 1981; Stirman & Pennebaker, 2001), and even physical health and longevity (Pressman & Cohen, 2007; Rohrbaugh, Mehl, Shoham, Reilly, & Ewy, 2008). Despite obvious implications for the study of IWMs, no published studies have applied word count procedures to studying attachment processes.

The goal of this project is to combine top-down (narrative-based) and bottom-up (word count–based) approaches to further our understanding of attachment states of mind in children. The work is guided by three assumptions. First, we believe the construct validity of attachment classification (for both children and adults) would be enhanced if these classifications conform to expectable patterns of linguistic discourse derived from text analyses. No published reports have investigated whether the words used in attachment interviews vary systematically across attachment classifications. In this respect, findings that illustrate the ways in which narrative- and word count–based approaches converge and diverge can make an important contribution to the attachment literature. Second, we believe that word count–based analyses can be used profitably to better understand the emotional content of children’s discourse. Although research using word count–based text analysis has proven valuable in the adult literature, no studies have used the method to children’s narratives. Studies of this nature are sorely needed, though, because linguistic discourse is an observable behavior that has the potential to augment studies relying exclusively on self- and/or parent-report data (Fast & Funder, 2008; Tausczik & Pennebaker, 2010). Thus, beyond the study of attachment and language, introducing word count–based linguistic analyses to child development research is a timely methodological contribution. Third, given the time-intensive and costly nature of attachment interviews, relationship researchers are in need of more efficient methods of assessing the IWM. Therefore, an additional goal of this project is to evaluate whether language use during the CAI has a meaningful relation with attachment classification in the hopes of—in the long run—identifying potential proxies for attachment classification that can save researchers time and money. This report considers the association between language and attachment classification in school-aged children.

With respect to attachment, language, and psychological processes, we evaluate three hypotheses. The first two hypotheses involve the linguistic construct of verbal immediacy (see Biber, 1988). Verbal immediacy is a factor analytically derived composite based on the standardized language categories of first-person singular (I, me, my), discrepancy words (e.g., should, would), present tense verbs, inverse scores for articles (a, the), and words of more than six letters (Pennebaker & King, 1999). Text samples high in immediacy use concrete, personal, involved, experiential language with a focus on the here and now. Lower scoring samples can be characterized as having an abstract, impersonal,
detached, and rational tone. In adults, verbal immediacy is inversely related to the need for achievement and the need for cognition (Pennebaker & King, 1999) and decreases following a traumatic event, presumably indexing a psychological distancing response within a broader psychological shock reaction (Cohn et al., 2004).

We propose that in the context of an attachment interview, verbal immediacy—or concrete, personal, involved, experiential language with a focus on the here and now—can be thought of as reflecting the degree of experiential connectedness that an individual feels to the verbalized material. Consistent with the notion that individuals with varying attachment classifications are differentially comfortable with the discussion of attachment-related themes, we predict that children’s attachment interviews will differ in verbal immediacy as a function of their attachment classification. Dismissing individuals, in particular, are thought to withdraw from attachment-related discussion and to have the least comfort with these topics (Main & Weston, 1981). On the AAI, adults characterized by a dismissing style use strategies that deny, dismiss, or minimize the impact of negative experiences (Crowell, Fraley, & Shaver, 1999; Hesse, 2008; Main, 2000) and are thought to have a deactivating emotion regulation strategy (Dozier & Kobak, 1992; Kobak et al., 1993), while showing the highest skin conductance during the interview (Dozier & Kobak, 1992; Roisman, Tsai, & Chiang, 2004). Therefore, we predict that dismissing children will show the lowest levels of verbal immediacy.

In contrast, preoccupied adults are thought to use hyperactivating strategies (Dozier & Kobak, 1992; Kobak et al., 1993; Mikulincer & Shaver, 2007) and seem highly connected to the experiences they describe in attachment interviews, often so much so that they are unable to incisively characterize their experiences (Hesse, 2008; Main, 2000). Therefore, we predict that preoccupied children will have the highest levels of immediacy in attachment narratives. Secure individuals, in contrast, strike the best balance between “fresh,” authentic speech and the maintenance of a high level of coherence within their narratives (Main, 1991). Based on this reasoning, we predict (Hypothesis 1) that secure children will have higher levels of immediacy than dismissing children but lower levels than preoccupied children during the CAI.

In attachment interviews, disorganized individuals, who are more likely to have a history of traumatic or frightening events (Abrams, Rifkin, & Hesse, 2006; Carlson, Cicchetti, Barnett, & Braunwald, 1989), typically resemble children classified in one of the other three “organized” categories except during their discussion of loss or trauma (Hesse & Main, 2000), during which they show a breakdown in discourse or reasoning that is thought to be indicative of a collapse in attachment strategy (Hesse & Main, 2000). It is proposed that disorganized attachment appears to be phenotypically similar to posttraumatic stress disorder (PTSD) in that experiences of loss or trauma are psychologically segregated, and thus kept distant, from nontraumatic memories, but at times also intrude into awareness (Fearon & Mansell, 2001).

In this study, we examine whether there is evidence to support this avoidance/intrusion model of disorganized attachment in the language that children use when talking about loss. Two hypotheses pertain to this PTSD-derived model of alternating symptoms of avoidance and intrusion. Hypothesis 2 predicts that disorganized children show relatively lower levels of verbal immediacy during discussion of loss compared with discussions of nonloss, which would be consistent with an interpretation of psychological distancing from loss experiences (cf. Cohn et al., 2004). In other words, we predict that disorganized children decrease more in experiential connectedness when shifting from nonloss to loss talk than children with organized (dismissing, secure, preoccupied) attachment classifications.

In addition, we sought to examine whether there is evidence for the intrusion of loss-related themes in parts of the interview in which the child is not being directed to discuss loss. Thus, with Hypothesis 3 we predict that disorganized children will show greater frequency of words related to loss (death words) in nonloss sections of the CAI (cf. Rodriguez,
Holleran, & Mehl, 2010). If Hypotheses 2 and 3 received support, this would suggest that when asked to talk about loss, disorganized children respond with a decrease in experiential connectedness (or verbal immediacy) presumably indexing avoidance. Yet, when talking about topics unrelated to loss, they still show subtle signs of activation of the concept of loss through their more frequent use of words related to death.

Method

Participants and procedure

Ninety-three children between the ages of 8 and 12 participated in this study as part of a larger project on children’s socioemotional development. Data collected on a subset of the parents indicate that the sample was moderately educated (70% of the sample had completed at least some college). The sample included 56.6% boys and 43.3% girls with a mean age of 10.0 years ($SD = 1.5$), with 86.6% Caucasian, 3.1% Hispanic, 3.1% African American, and 7.2% biracial children. The majority (87.6%) of children lived in two-parent homes. The data reported here were collected in a single study session that lasted approximately 1.5 h.

Measures

Attachment interview

The CAI (Shmueli-Goetz et al., 2008; Target, Fonagy, Shmueli-Goetz, Datta, & Schneider, 1999; Target et al., 2003) is a semistructured interview designed for 8- to 13-year-olds that assesses the quality of children’s attachment to each of their primary caregivers. Nineteen questions probe the child’s current and past experiences with primary caregivers and prompt the child to evaluate the qualities of these relationships. Each interview is coded on eight 9-point rating scales (e.g., Idealization, Preoccupying Anger; Shmueli-Goetz, Target, Datta, & Fonagy, 2004). Overall Narrative Coherence is a summary score of the CAI scales and is considered a dimensional measure of attachment security (Shmueli-Goetz et al., 2004). By definition, children who are classified into one of the three insecure categories (dismissing, preoccupied, disorganized) have low coherence scores. Coders assign each interview an overall narrative coherence score based on a child’s score on the other state of mind scales (e.g., idealization), and this score can then be used as a continuous measure of attachment security.

Coding involves an assessment of the child’s state of mind with respect to attachment, not their actual experiences with attachment caregivers. Therefore, coders are interested in identifying whether the child is generally able to describe experiences with caregivers openly or whether the child’s descriptions are constrained by one or more factors (Target et al., 2003). Generally speaking, children are classified as secure if they provide concrete examples that support the stated assessment of their relationships with their parents, appear emotionally open, and can discuss positive and negative aspects of these relationships freely (Target et al., 2003). Children are classified as dismissing if they report having little or no memory of their experiences with their parents or if they grossly idealize their relationships with caregivers. Children are classified as preoccupied if they become overtly angry to the point where they lose track of the interview during a discussion of their caregivers or if they talk extensively about topics unrelated to the interview (Target et al., 2003). Similar to the AAI, children are classified as disorganized if, when discussing loss, trauma, or extremely frightening experiences, they demonstrate behavior that is different from their typical style of discussion (e.g., sudden and marked switches in affect, bizarre associations or catastrophic images) or more generally display a hostile, punitive, or controlling stance toward the interviewer (Shmueli-Goetz et al., 2008; Target et al., 2003).

The interview was videotaped and transcribed. Interviews were administered by two female doctoral students and then coded by researchers who had achieved coding reliability on the CAI and the AAI. Interviews were classified into one of four categories with respect to each caregiver: secure, dismissing,
preoccupied, and disorganized. The CAI has demonstrated strong psychometric properties in both clinical and nonclinical samples (see Shmueli-Goetz et al., 2008). In this sample, interrater reliability on 20 cases (21% of sample) was excellent (four-way: $\kappa = .86, \ p < .001$; three-way: $\kappa = .83, \ p < .001$; intraclass correlation coefficient for narrative coherence scale = .97, $\ p < .001$).

Word count–based linguistic analysis of the CAI

After removing the interviewers’ statements from verbatim transcripts, the CAI texts were submitted to Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001). LIWC operates by comparing each word of a text to an internal dictionary consisting of 74 linguistic (e.g., personal pronouns) and psychological (e.g., positive and negative emotion words) dimensions. The output tabulates word use as a percentage of total words in a text that fell into a given category (e.g., percentage of words that were first-person singular pronouns). From the 74 LIWC categories, only those that comprise the verbal immediacy index and words thought to reflect disorganized attachment (death words; e.g., dead, kill, grave; Rodriguez et al., 2010) were selected for this study. Verbal immediacy was computed based on the standardized LIWC categories of first-person singular, discrepancy words, present tense verbs, inverse scores for articles, and words of more than six letters (Cohn et al., 2004; Pennebaker & King, 1999). Cronbach’s $\alpha$ for the immediacy scale in this sample was .93.

Results

Descriptive statistics indicated that 29% ($n = 23$) of the sample was classified as dismissing, 45% ($n = 42$) as secure, 7% ($n = 6$) as preoccupied, and 19% ($n = 18$) as disorganized. These frequencies are similar to what has been reported in previous research (Shmueli-Goetz et al., 2008).

Means and standard deviations for language variables by attachment classification are presented in Table 1. Attachment classification was related to number of human, $F(3, 91) = 4.97$, $\ p < .01$, but not animal losses, $F(3, 91) = 0.21$, $ns$, losses, reported in the interview. The results of a least significant difference (LSD) post hoc test indicated that disorganized children reported significantly more human losses than dismissing, $p < .001$, and secure, $p < .05$, children, and that secure children reported significantly more losses than dismissing children, $p < .05$. A significant attachment group difference emerged for age, $F(1, 95) = 3.64$, $p < .05$, with preoccupied children being older than all other children. All analyses included child age and gender as covariates. Finally, a bivariate correlation revealed that

<p>| Table 1. Means (standard deviations) of study variables by attachment classification |
|---------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th></th>
<th>Total ($N = 94$)</th>
<th>Dismissing ($n = 27$)</th>
<th>Secure ($n = 42$)</th>
<th>Preoccupied ($n = 6$)</th>
<th>Disorganized ($n = 18$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediacy—entire CAI(a,b)</td>
<td>0.00 (0.25)</td>
<td>-0.12 (0.14)</td>
<td>0.04 (0.24)</td>
<td>0.39 (0.37)</td>
<td>-0.05 (0.22)</td>
</tr>
<tr>
<td>Death/dying—entire CAI(b)</td>
<td>0.52 (0.27)</td>
<td>0.40 (0.22)</td>
<td>0.55 (0.29)</td>
<td>0.34 (0.09)</td>
<td>0.70 (0.25)</td>
</tr>
<tr>
<td>Death/dying—NL(b)</td>
<td>1.70 (1.34)</td>
<td>1.32 (1.36)</td>
<td>1.64 (1.23)</td>
<td>2.19 (2.28)</td>
<td>1.98 (0.94)</td>
</tr>
<tr>
<td>Death/dying—LO(b)</td>
<td>0.03 (0.06)</td>
<td>0.03 (0.07)</td>
<td>0.02 (0.04)</td>
<td>0.05 (0.09)</td>
<td>0.04 (0.09)</td>
</tr>
<tr>
<td>Narrative coherence</td>
<td>4.72 (2.14)</td>
<td>3.10 (0.88)</td>
<td>6.80 (1.01)</td>
<td>4.42 (1.36)</td>
<td>2.53 (0.87)</td>
</tr>
</tbody>
</table>

Note. Indented variables represent subcategories. CAI = Child Attachment Interview; NL = nonloss portions of interview; LO = loss only portions of interview.

\(a\)Immediacy is a composite based on the following Linguistic Inquiry and Word Count variables: first-person singular pronouns (I, me, my), present tense verbs, discrepancy words (e.g., would, should, could), articles (a, the; reverse scored), and words of more than six letters (reverse scored); because it is based on standardized variables it has a mean of 0.

\(b\)Word count variables are presented as a proportion of total words spoken.
overall, as narrative coherence, the continuous attachment security score derived from the interview, increased, so did verbal immediacy—our linguistic index of experiential connectedness, \( r = 0.25, p < .05 \).

**Hypothesis 1: Association of verbal immediacy with organized insecure attachment strategies**

Age and attachment classification emerged as main effects in a one-way analysis of covariance (ANCOVA) model examining the verbal immediacy composite variable, \( F(1, 93) = 4.56, p < .04, \eta^2 = .07 \), and \( F(3, 93) = 6.84, p < .01, \eta^2 = .07 \), respectively. The interaction between attachment and age was not significant. Older children showed greater immediacy on the CAI, and the results of an LSD post hoc test revealed that dismissing children had lower immediacy than secure, \( p < .01 \), and preoccupied children, \( p < .001 \), and that preoccupied children had greater immediacy than all other groups (secure, dismissing, and disorganized children), \( ps < .001 \) (Figure 1, Panel A). Figure 2 depicts selected excerpts from three interviews with a dismissing, secure, and preoccupied child to illustrate how verbal immediacy indexes experiential connectedness.

**Hypothesis 2: Verbal immediacy among disorganized children in loss and nonloss contexts**

We evaluated whether disorganized children showed a greater decrease in verbal immediacy than organized children during their discussion of loss relative to their discussion of nonloss. To test this, we first standardized verbal immediacy within each attachment classification relative to the group’s “baseline,” or verbal immediacy scores during nonloss discussions. A 2 (disorganized vs. organized) × 2 (nonloss vs. loss) ANCOVA demonstrated an interaction between age and condition and between attachment and condition, \( F(1, 93) = 4.38, p < .05, \eta^2 = .05 \), and \( F(1, 93) = 6.37, p < .01, \eta^2 = .07 \), respectively. Older and disorganized children showed a greater decrease in immediacy during loss as compared with younger and organized children (Figure 1, Panel B).

**Hypothesis 3: Frequency of references to loss (i.e., death words)**

We evaluated the frequency of death-related words across the entire CAI, during the child’s discussion of loss experiences, and in the portions of the interview not focusing on loss. When analyzed across the entire interview, attachment classification was related to use of
<table>
<thead>
<tr>
<th>Level of Immediacy</th>
<th>Transcript</th>
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<tbody>
<tr>
<td>Child with dismissing attachment (Verbal Immediacy $= -0.22$)</td>
<td>Can you tell me about a time that you were upset and wanted help? No… nobody would help me. I- helped me put away the game. When did that happen? In spring. Was it a hard game to put away? It was a big game. What did you do? What happened? I did… take all the games out and put it on the bottom. Did you do that by yourself? Yeah. By standing on a book.</td>
</tr>
<tr>
<td>Child with preoccupied attachment (Verbal Immediacy $= 0.77$)</td>
<td>Can you tell me about a time that you were upset and wanted help?Yeah. By standing on a book. I did… take all the games out and put it on the bottom. Did you do that by yourself? Yeah. By standing on a book.</td>
</tr>
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</table>

**Figure 2.** Selected excerpts of interview transcripts identified as having low, medium, and high levels of immediacy.

Levels of immediacy here pertain to the child’s entire Child Attachment Interview, not the excerpt presented in this table. Interviewer questions/comments are included in italics. All interviewer utterances were removed from transcripts before they were subjected to the Linguistic Inquiry and Word Count analysis but are included here for ease of interpretation.

dead words, $F(1, 93) = 5.24, p < .05, \eta^2 = .06$; disorganized children used significantly more dead words than all other attachment groups, $p < .05$. The attachment effect was not present during discussions of loss, $F(1, 93) = 0.41, \text{ns}$, but was present when we analyzed the portions of the interview not focusing on loss, $F(3, 93) = 3.46, p < .05, \eta^2 = .10$. LSD post hoc tests revealed that preoccupied children used more dead words than dismissing children, $p > .05$, and that disorganized children used more dead words than all other children, $p > .05$.

**Discussion**

Although paradigmatically quite different, both top-down (narrative) and bottom-up (text-based) approaches are used successfully to study variability in adults’ psychological states. The purpose of this study was to further the understanding of attachment processes in children completing the CAI and to take a first step toward integrating the assessment of top-down and bottom-up approaches for assessing IWMs of attachment. Support was found for the study’s main hypotheses.

As predicted, we found that across the interview as a whole, preoccupied children showed the highest levels of verbal immediacy, secure children showed moderate levels of verbal immediacy, and dismissing children showed the lowest levels of verbal immediacy. Disorganized children showed a level of verbal immediacy that was significantly lower than that of preoccupied children but not significantly different from that of dismissing or secure children. The correlation between the narrative coherence scale and verbal immediacy revealed a similar picture—as narrative coherence (or attachment security) increases, so does verbal immediacy. Given that we had so few preoccupied children in the sample ($n = 6$), this correlation mainly reflects the observed difference between dismissing children (who by definition have low narrative coherence scores) and secure children (who by definition have higher narrative coherence scores). Theoretically, the categorical findings are consistent with the idea that dismissing
children are experientially detached from, secure children are moderately connected to, and preoccupied children are highly connected to their discussion of attachment-related experiences. In the context of an attachment interview, it may be most adaptive for children to be moderately connected to the topic of discussion as this should enable them to devote attention to the interviewer’s agenda as well as their own thoughts and feelings, perhaps enabling the reflective, fresh, in-the-moment discourse termed metacognitive monitoring by Main and colleagues (cf. Hesse, 2008). In addition, maintaining a moderate level of connectedness may allow children to objectively evaluate and present a balanced view of their experiences, which is also characteristic of secure children (Shmueli-Goetz et al., 2008). On a broader level, these group-based verbal immediacy findings provide further support for the construct validity of the CAI attachment classifications and show that experiential connectedness on the CAI, operationalized as verbal immediacy scores, reveals differences among attachment classifications.

The differences in immediacy observed across attachment groups may suggest differential strategies for the regulation of emotion during the discussion of attachment relationships, each of which may be adaptive for the child. In this sense we emphasize the importance of context when considering the adaptiveness of verbal immediacy. For example, verbal immediacy in blog use declined in the wake of the attacks of September 11, 2001 (Cohn et al., 2004), which may indicate experiential distancing as part of an adaptive coping response to an overwhelming event. In the case of attachment, it may be most adaptive for preoccupied children to use language with a high level of experiential connectedness (at least in terms of short-term regulation), whereas it may be optimal for dismissing children to maintain experiential distance when discussing attachment-related topics. This is similar to the idea that the behavioral avoidance of avoidant infants and the ongoing proximity seeking of ambivalent-resistant children can serve to preserve the availability of the infant’s attachment figure (Ainsworth, Blehar, Waters, & Wall, 1978; Main, 1981). According to theory, the infant learns to exhibit behaviors that are most likely to preserve the availability of the attachment figure, and attachment figures differ in terms of which types of behaviors are most likely to ensure their physical and emotional availability to the child (e.g., Ainsworth et al., 1978). Therefore, maintaining psychological distance during the discussion of attachment themes may actually keep the dismissing child regulated, thereby increasing the likelihood that his or her caregiver will remain available to him or her during times of need. In this study, we did not have data that could address this hypothesis, but future studies ought to examine whether different levels of verbal immediacy have different correlates within each attachment grouping, for example, by measuring indicators of stress reactivity for their association with verbal immediacy within each attachment grouping (cf. Seider et al., 2009).

In addition, future research should examine if the observed immediacy–attachment relation is specific to the discussion of attachment relationships. The case that verbal immediacy in this context reflects experiential connectedness to and comfort with attachment experiences would be strengthened if, for example, children of varying attachment classifications did not demonstrate differences in immediacy when discussing nonrelational topics.

Disorganized children showed greater decreases in immediacy during their discussion of loss than organized children. Ironically, however, they also showed greater use of death-related words during the nonloss portion of the interview. Despite disorganized children’s experiential avoidance of explicitly overwhelming topics like loss, language related to disorganizing experiences may seep into other, unrelated parts of the interview. Importantly, disorganized children also reported experiencing more losses than other children, and the above-reported effects remained after statistically controlling for the number of experienced losses. If replicated, these findings would provide support for the idea that, similar to the dynamic observed in PTSD, disorganized children show signs of
experiential avoidance during the explicit discussion of loss while also evidencing intrusions of words related to loss during ostensibly unrelated parts of the interview (Fearon & Mansell, 2001). If this effect proves to be clinically meaningful, the exposure-based therapeutic techniques designed to reduce experiential avoidance in individuals with PTSD might also be applicable to children with disorganized attachment.

The findings have several important implications for relationship research. One of the primary difficulties of conducting research on attachment representations is the very high cost involved in coding AAI s and CAI s. To become a certified CAI coder, a researcher must attend a week-long training in London and complete a testing phase lasting 1–2 years. Once the CAIs are conducted and transcribed, the coding itself takes approximately 3 hr per interview and costs between $100 and $150. The financial and time costs involved in coding the AAI are similar or greater. Researchers interested in attachment states of mind are reluctant to utilize the significantly less costly self-report measures of attachment style because they tend to be only weakly correlated with attachment interviews (see Crowell et al., 1999). Thus, if it were possible to reliably predict attachment classification from linguistic parameters—for example, by using, among other variables, the verbal immediacy index—attachment researchers might be able to rely on word-use information automatically derived from CAIs as a proxy for dismissing attachment. Although such a solution is only visionary for the study of attachment processes at this time, it has been successfully developed for other individual differences (Mairesse, Walker, Mehl, & Moore, 2007). Ultimately, this type of analysis could enable researchers to examine important relationship processes in a more cost-effective manner without having to always implement full-scale, manualized CAI codings. This study presents an attempt to take an initial step in this direction and has established a strong statistical link between verbal immediacy and attachment states of mind, one that, if replicated, could significantly aid attachment researchers.

Age repeatedly emerged as an important variable in this study. Specifically, older children showed greater immediacy overall on the CAI and decreased their immediacy more when discussing loss (relative to their discussions of nonloss topics). These effects were unpredicted but deserve consideration. Previous studies have also found pronounced differences in language use as a function of age (Pennebaker & Stone, 2003), but in contrast to this study, these researchers found that among adults, first-person singular pronoun use decreased with age (i.e., over the life span). In this study, verbal immediacy, a composite scale that includes first-person pronouns, increased with age. It is noteworthy that preoccupied children were slightly older than the other children in the study, and preoccupied children also had the highest immediacy. Although the relation between preoccupied attachment and immediacy persisted after statistically controlling for age, the interrelations among these three variables should be more closely examined in future studies. For instance, are older children in general more likely to discuss their attachment experiences with more immediacy? If so, does this mean that they are more experientially connected to their attachment experiences or is it an artifact of language development? Further, due to the fact that older children are more verbal in general, are coders more likely to mistakenly classify them as preoccupied? The findings strongly suggest that age should be evaluated as a potential confound in future longitudinal studies of children’s language and attachment.

These findings also raise questions about whether verbal immediacy would be related to adult attachment as measured by the AAI. No published reports have examined the link between adult attachment organization and language use, though the results of a recent study suggest that language use may be an important indicator of psychological functioning in autobiographical narratives of adults with and without social anxiety disorder (Anderson, Goldin, Kurita, & Gross, 2008). The age effects observed in our study leave us uncertain as to whether immediacy would vary by attachment classification in
adulthood. Future research should specifically evaluate this question.

Some caveats of the study design deserve consideration. First, this investigation was correlational, precluding causal inference. Second, this sample was low risk and contained very few participants from ethnic minority groups (13%). Third, the sample size was relatively small and resulted in small numbers for the different insecure groups. Subsequent research should evaluate these hypotheses using larger and more heterogeneous samples of children.

This study is the first to examine the added value of bottom-up approaches to analyzing narrative discourse to top-down attachment classifications. At the theoretical level, the findings provide further support for the validity of attachment classifications in middle childhood: Dismissing children show lower and preoccupied children show greater experiential connectedness than secure children, and disorganized children show a decrease in experiential connectedness when discussing loss and a greater use of loss-related words at other times. At the methodological level, this study identifies the intersection of top-down and bottom-up approaches to narrative analysis as a promising area of inquiry for future examinations of children’s socioemotional functioning.

References


