Abstract

BANKS, JONATHAN B. The Impact of Event Familiarity on the Complexity and Coherence of Children’s Narratives of Positive Events. (Under the direction of Lynne Baker-Ward.)

The coherence of individuals’ narratives of negative events has been shown to have significant positive effects on a variety of indicators of adaptive functioning (Klein & Boals, 2001; Pennebaker, Mayne, & Francis, 1997). Relatively little is known, however, about the processes through which individuals form coherent narratives of important personal experiences. This research examined the role of familiarity with the event on changes over time in the measures of narrative complexity, coherence and intrusive thoughts. In addition, the relationships among three previously used measures of coherence (a count of words in relevant categories, an overall rating, and a measure of causal connections between clauses) were examined, and the association between each measure and a criterion measure, Story Grammar, was explored. Two groups of 16 children participated in either a familiar event, a soccer tournament, or an unfamiliar event, soccer tryouts for a more competitive leaguer. All participants were interviewed within one week of the event and six weeks after the first interview. In contrast to expectations, familiarity with the event did not result in higher initial levels of coherence, and the coherence of the account of the less familiar event did not increase over time. The alternative measures of coherence were related to Story Grammar as expected, but were not correlated with each other.
The Impact of Event Familiarity on the Complexity and Coherence of Children’s Narratives of Positive Events

By

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A thesis submitted to the Graduate Faculty of North Carolina State University In partial fulfillment of the requirements for the Degree of Master of Science Department of Psychology Raleigh, NC October 25, 2004

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ACKNOWLEDGEMENTS

I would like to thank my friends and colleagues who helped make this research possible. Many thanks and gratitude is extended to my advisor, Dr. Lynne Baker-Ward. Her support, creativity, and many hours of assistance were essential to this project. I would also like to thank my committee members, Dr. Thomas Hess and Dr. Kitty Klein, for their insights on this project. I would also like to thank Dr. Daniel Bauer for his help with data analysis. I wish to express my appreciation to Dr. Kimberly Eaton, Diane Law, Benjamin Brown, Gwynn Dillard, Julie Thompson and many undergraduate assistants for their help in interviewing participants, transcribing narratives, and coding. Thanks to Adriel Boals, Nicole Browder, and my family for their patience and assistance. I would like to recognize the Capital Area Soccer League and the families involved for their assistance and participation.
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The Impact of Event Familiarity

On the Complexity and Coherence of Children’s Narratives of Positive Events

The structure of adults' narratives of personal experiences has been associated with important outcomes. The coherence of accounts of stressful events, that is, the extent to which the narrative links aspects of the report in a causal manner and adds meaning to the experience, has been shown to be of particular significance (Klein & Boals, 2001). Specifically, when individuals who are dealing with difficult life events increase the coherence of their reports of their experiences (and presumably that of their mental representations), they accrue a variety of positive consequences.

Most studies of coherence involve participants writing about negative events three to four times in a laboratory setting, a procedure that has been shown to increase the coherence of the narrative (Pennebaker, 1997). In these investigations, narrative coherence is measured in terms of the amount or proportion of the use of words in their narratives that are causal or temporal connectors. Researchers have reported positive effects of increasing coherence through expressive writing on a number of indicators, including blood markers of immune functioning (Pennebaker, Kiecolt-Glaser, & Glaser, 1988), grades in college (Pennebaker & Francis, 1996), visits to the doctor’s office (Pennebaker, Kiecolt-Glaser, & Glaser, 1988), and even in the time required for executives who have been laid off to find new jobs (Spera, Buhrfeind & Pennebaker, 1994). The coherence of the representation of stressful experiences has also been shown to affect cognitive performance. Klein and Boals (2001) asked college students to come
to the laboratory and randomly assigned then to write either about their "deepest thoughts and feelings," a manipulation designed to increase coherence, or about their time management skills, a control manipulation, over a period of a few weeks. Relative to those in the control condition, the students who experienced the expressive writing manipulation showed increases in memory capacity and grade point average.

Klein and Boals suggested that these outcomes arise because a more tightly structured event representation results in decreases in intrusive thoughts about the experience. With a more connected representation for the event, the individual is less likely to be reminded of the event, due to the chance association of aspects of the event with other memories that are not related to the experience. Since the coherent representation should be less likely to be associated with any other non-related memories, the memory is less likely to be triggered inadvertently and hence to cause intrusive thoughts. With such reduction in distraction, the individual can be expected to function more efficiently on cognitive tasks (Greenberg, 1995). Consistent with this interpretation, Klein and Boals reported that working memory improvement in individuals who wrote expressively was mediated by declines in intrusive and avoidant thinking about a negative event (2001).

Despite the demonstrated importance of narrative coherence, much remains to be learned. This research extended the present understanding of the development of coherence in two ways. First, the work examined the acquisition of coherence in individuals' accounts of important personal experiences over time by examining the role of one factor that may facilitate coherence, the presence of a representational structure, a Story Grammar (Stein, 1988). Second, the work was conducted with children and hence
extended the work of Pennebaker, Klein, and other researchers to a younger age group. In addition, the work examined the extent to which coherence affects individuals' retention of important positive experiences, in contrast to the previous research that examined negative or explicitly stressful experiences. Further, this research was designed to make a methodological contribution to this literature by comparing alternative methods for operationalizing coherence.

Coherence in Children's Event Reports

Developmental changes in the structure of children's narratives as well as the availability of coherent event representations can be expected to affect children's reports of personal experiences. Relatively little is known, however, about the developmental trajectory of narrative coherence as it affects reports of emotionally charged personal experiences. Most of the work on coherence has been done with adults and college students (Klein & Boals, 2001, Spera, Buhrfeind, & Pennebaker, 1994, Pennebaker, Mayne, & Francis, 1997). However, research on children's narratives provides a basis for predicting developmental changes in the coherence of children's autobiographical reports.

Hudson and Shapiro (1991) stated that four important types of knowledge or skills develop and influence narrative development. Changes with age in available content knowledge, structural knowledge, microlinguistic knowledge, and contextual knowledge all have effects on the construction of narratives. Content knowledge refers to generalized event representations, knowledge about common typical types of social interactions, and memories for specific events. Structural knowledge is macrolinguistic knowledge about the structural components of narratives. Microlinguistic knowledge is knowledge about different types of “connectives as well as how to adjust tense, pronoun use, and anaphoric
reference” (Hudson & Shapiro, 1991 p. 99). Contextual knowledge refers to what the narrator knows about the function of the narrative in a particular situation. The development of coherence is affected by microlinguistic, content, and structural knowledge. Children’s ability to use more advanced connectives in their narratives, their knowledge about how narratives should be structured, and their knowledge about the event topic helps them to create a better narrative structure (Hudson & Shapiro, 1991).

Hudson and Shapiro (1991) discussed the development of these types of knowledge in three types of narratives: scripts, personal narratives, and stories. They found that as children develop they include more types of structural elements. Specifically, third graders used more background information, high points, and endings than did first graders or preschoolers. These researchers also found that children used more cohesive devices for narratives in genres that they have mastered. The narrative structure for children’s scripts and personal narratives is relatively complete by third grade whereas narrative structure in children’s stories continues to develop. Children have to use less cognitive effort to achieve coherence when they have mastered narrative structure and when the event requires little restructuring for the production of the narrative. Knowledge about how the event should be structured and how narratives should be structured aid in the coherent representation of the event.

Although Hudson and Shapiro focus on the importance of scripted knowledge in children’s formation of coherent narratives, other types of narrative understanding may also be expected to support the production of organized, coherent event reports. Story Grammar, as defined by Stein and Trabasso, may be particularly important in this regard.
Story Grammar: A Path to Coherence?

Story Grammar is concerned with the completeness and structure of narratives. The theory behind the use of Story Grammar is based on Stein and Glenn’s (1979) assumption that there is a relationship between the way that incoming information is encoded and patterns of information or already existing psychological structures. Encoding and inferences made during comprehension is determined by these existing structures.

Interpreting and remembering a new event can depend on the number of times that an event occurred previously. The number of times that an event has happened would also then affect the Story Grammar that is used to recall the event. Habitual or recurring events may be “assimilated to preexisting knowledge organizations and may not require the activation of general knowledge about goals and plans” (Trabasso & Stein, 1997, p. 238). Novel events, however, require a person to use “flexible knowledge bases for understanding” (Trabasso & Stein, 1997, p.238). Trabasso and Stein believe that the piece that holds the understanding of events together is causal in nature. This means that the way that the individuals keep track of all of the parts of the narrative is by using causal links between all of the separate parts. An individual would remember that item A caused a reaction in person B. Then Person B, because of item A, committed act C. It would seem that if the understanding were held together by causal structures, the understanding of the event, or the action C is understood because of the reaction of person B to item A, then causal structures might also affect the memory for the event. The causal structures might help the individual to remember the event due to the fact that the memory will be more tightly structured. It has been shown that events that are
integrated into causal chains are twice as memorable as those that are less causally structured (Trabasso, Secco, & Van den Broek, 1984). If events that are integrated into causal chains were more memorable, then it would support the idea that causal structures are important when investing coherence of individual memory.

Stein’s (1988) story-structure coding system breaks the different aspects of Story Grammar into a hierarchical model with six levels of story structure. Ordered by increasing complexity, these six structures are descriptive sequences, action sequences, reactive sequences, incomplete episodes, complete episodes and embedded episodes.

Age differences have been found in the average Story Grammar ratings for children’s stories (Trabasso & Stein, 1997). As would be expected, older children are better than younger children in forming complete episodes. Whereas preschoolers’ stories had an average rating between a reactive sequence and an incomplete episode, second graders’ stories, on the average, rated between an incomplete episode and a complete episode, and fourth graders were likely to create complete episodes (Trabasso & Stein, 1997). It is possible, however, that these ratings would be lower if the individual were talking about a personal event rather than a story that they created from pictures arranged by the researcher. Creating a story from pictures arranged by the researcher is the procedure generally used in research with Story Grammar. In reporting a personal experience, children would be required to impose their own structure on the event, rather than utilizing the implicit organization framework conveyed in the administration of the stimulus materials.

In the usual study with Story Grammar, children look at pictures and then create stories to accompany the pictures. They are then asked to recall their stories without the
aid of pictures after a short period and then again after a longer delay (e. g., Poulsen, Kintsch, Kintsch, & Premack, 1979). The type of structure that the individual uses to recall a story at one point in time has been shown to be related to the probability of recalling the story. The likelihood of recalling an encoded action or descriptive sequence is lower than that for recalling a reactive sequence, incomplete episode, or complete episode (Trabasso & Stein, 1997). The more complete the structure is in encoding, then the more likely that the event will be remembered.

Although Story Grammar has been used in a large number of investigations, it has not yet been applied to research on children’s event memory, in which individuals are asked to report personal experiences rather than constructed stories. Nonetheless, it is assumed that Story Grammar will be applicable to event reports because of the importance of narrative structure in both genres. Moreover, it is assumed that Story Grammar by definition provides an indicator of narrative coherence because of its emphasis on causal links within a story. It should be noted, however, that Stein and Trabasso have not addressed directly the issue of coherence in their work involving Story Grammar, and Story Grammar has not been applied as a measure of coherence. The present investigation examined the effects of Story Grammar on the formation of coherence in children’s autobiographical narratives.

Coherence and Positive Events

Although the coherence with which individuals talk or write about negative experiences is widely accepted as a determinant of the extent to which they experience adverse consequences in the aftermath of the event, the role of coherence in reports of positive experiences has received relatively little attention. Based on research in several
different domains, it can be argued that positive events can be just as significant as negative events in individuals’ lives. If so, forming coherent representations of positive as well as negative events may have benefits for the individual.

Fivush, Hazzard, Sales, Sarfati, and Brown (2003) found that parents devoted comparable amounts of time to talking with their children about positive events and negative experiences. In addition, the children provided a similar amount of information about both the positive and negative events, suggesting that the two categories of experiences were of comparable salience. It is also the case that individuals’ memories of past experiences affect their current self-conceptualizations (Wilson & Ross, 2003). Hence, memories for positive experiences, in which individuals experience events that define or reaffirm their competence in valued domains, would serve a vital role in the formation and maintenance of the self-concept.

Moreover, positive events can also be stressful in that they require adaptation. Interestingly, the Social Readjustment Rating Scale by Homes and Rahe (1967) incorporates positive events such as vacations, marriages, marital reconciliations, and educational transitions. If these events cause stress in a person's life, then they could easily be the source of intrusive thoughts that can interfere with the performance of everyday tasks. In such instances, forming coherent representations of positive experiences, as is the case with negative events, could enhance functioning by minimizing the likelihood that intrusions about the positive event will be triggered at random unwanted times (Greenberg, 1995).

Recent work in our laboratory has examined children's reports of a positive or negative experience, and has explored the participants' development of a coherent
representation of the event. Baker-Ward, Eaton, and Banks (in press) interviewed 10 year-old soccer players about their last soccer game in a season-culminating tournament. The coherence of the narratives of the event generated by children who played on winning versus losing teams was compared. There was a significant effect of the team’s outcome on the coherence of the children’s narratives. Children who had experienced a positive event (i.e. winning the game) used a higher proportion of cohesive devices than the children who experienced a negative event (i.e. losing the soccer game). If positive events were not as important to individuals, then there might not be a reason for the individuals to have a more coherent narrative of the event.

In this study, however, no change in coherence over time was observed among members of either winning or losing teams. This might be because the event under examination was similar to events that the participants had previously experienced, enabling the children to apply a fairly complete Story Grammar for this event pretty quickly. The children who experienced a negative event may have a harder time applying a complete Story Grammar for the event as quickly, therefore the group that experienced the negative event would not be expected to have as coherent narrative at first. This might explain why coherence appeared to be established at the initial interview. However, the possibility that the small sample size affected the pattern of results also exists. Hence, additional research is needed to examine directly the impact of Story Grammar on the establishment of coherent representations.

*The Establishment of Coherence*

The factors associated with the establishment of narrative coherence over time remain largely unexplored. Work done by Klein and also by Pennebaker has examined
the effects of writing about stressful experiences among adults. The writing done by these participants over a short period of time resulted in a rise in the level of coherence in their narrative accounts of the event. This manipulation is believed to be similar in some regards to talking with a therapist. Participants write about their event and by doing so are able to construct a more coherent representation without the help of a therapist. However, the specific mechanisms that underlie the change in coherence with repeated examination of the event through therapeutic writing remain to be discovered.

Robyn Fivush and her colleagues (Fivush, Hazzard, Sales, Sarfati, & Brown, 2003) have conducted some of the only work that has looked at the coherence of children's reports of negative and positive personal experiences. In this research, coherence was measured by a rating of the child's narrative of the event. The Global Rating system, developed by Peterson and McCabe (1982), involves assigning the narrative a rating from one to four, with one being a disoriented pattern, two being a chronological pattern, three being a narrative that builds up to a high point and then ends, and four being a narrative that builds up to a high point and then resolves the narrative. Fivush et al. (2003) found that when children were reporting a positive event they provided more information about objects and people and used more descriptive detail whereas when reporting a negative event the children included more information about their thoughts and feelings. Children’s reports on negative events were also found to be more coherent than the positive event reports.

The present study will focus only on children’s reports of a positive event and thus it might be expected that the levels of coherence found might be expected to be lower than if the reports were about a negative event. The present work attempts to
explore the possible influence of Story Grammar on the coherence of children's accounts of their personal experiences. Two groups of ten year olds were studied. One group of children (The More Familiar Event Group) participated in an event that they had previously experienced on multiple occasions, a recreational soccer tournament game. The other group (The Less Familiar Event Group) experienced an event that was new to them when they tried out for a competitive soccer league. Both groups of children had comparable expertise in soccer, so levels of domain knowledge were expected to be similar across the two groups. The group of individuals who completed the soccer tournament game was asked to talk about their memory for the more familiar event, the tournament. This event would be more familiar due to the fact that the individuals would have competed in many other games before and also in other tournaments. The individuals who were asked to talk about trying out for the competitive league were reporting a less familiar event as they had never before competed for placement on a soccer team. The level of narrative coherence in the two group’s event reports was compared to determine if Story Grammar influences narrative coherence. The children were interviewed at two times with an average of six weeks between each interview, so that changes in narrative coherence over time could be explored.

*Rationale for this Research*

If Story Grammar provides a template for a coherent representation, and if children as young as nine have good Story Grammar for stories (Trabasso & Stein, 1997), then even elementary school children can be expected to form coherent narratives under some conditions. Since the participants in the current study were between the ages of 10 and 11 years, there is no question regarding their being able to apply relatively complex
levels Story Grammar. It was assumed that the More Familiar Event, relative to the Less Familiar Event, would be more readily structured, as indicated by the level of Story Grammar identifiable in the children’s narratives. The children who the soccer tournament, the More Familiar Event, had experienced similar events before and hence could be expected to have an existing story about what happens in a soccer game to use as a basis for the narrative of the specific episode they reported. It was assumed that this would make it easier for them to form a narrative about the event, since it was a more familiar event. In contrast, the children who were trying out for a higher-level soccer league, the Challenge league, were competing for placement for the first time and hence would not have a template for a narrative account of the experience, since it was a less familiar event. Moreover, the components of the soccer tryouts event were assumed to be less routine than those that occurred in the games. The order of the event components changed across the four days of the tryouts. Hence, applying Story Grammar was assumed to be harder within the context of this event, both because it was a new experience and the order of the actions was not as predictable as the order of the actions in a game.

It was further expected that the application of more complex levels of Story Grammar in the narratives of the More Familiar Event would enable the children to generate more coherent representations of the More Familiar relative to the Less Familiar event. A child with a more complex level of Story Grammar should be able to create a more coherent representation due to the fact that the individual’s narrative would be more well structured and thus making the narrative more coherent would be easier than if the
narrative was poorly structured. This is expected to be true especially if the narrative is structured with causal linkages.

It was expected that the More Familiar Event Group would not show any change over time, given that the More Familiar Event Group would already have a well-structured narrative. The Less Familiar Event Group was expected to show an increase over time in their level of narrative complexity. This was expected since they would have construct the structure of the event for the first time rather than being able to rely on prior event structures, this process was expected to take a longer amount of time in the Less Familiar Event Group than in the More Familiar Event Group and as such the Less Familiar Event Group would show an increase in narrative complexity over time. The delay between the first and second interview would allow the Less Familiar Event Group enough time to create the more complex narrative.

An additional purpose of this research was to compare alternative techniques for operationalizing narrative coherence. As indicated above, coherence has been measured and conceptualized in many different ways. Many of the studies on the coherence of adults' narratives use the LIWC (Linguistic Interpreter and Word Count), computer software program designed by Pennebaker and Francis (1999). This system provides a count of the number of specific words to rate coherence. In the present research, causal, insight, and cognitive mechanism identified through the application of LIWC were examined as an indicator of coherence. Causal and insight words are a subset of cognitive mechanisms. These three categories were chosen because it was felt that they best identified the mechanisms that were believed to be involved in a coherent narrative. The LIWC measure (Pennebaker and Francis, 1999) is used as a measure of coherence by
looking at the number of words in a specific category as a proportion of the total number of words in the narrative. The construct of coherence is conceptualized by the connective devices that are used in the narratives to describe the relationships between parts of the event. This measure has been used frequently by researchers, including Klein and Boals (2001) and Gortner and Pennebaker (2003).

In their study of children’s narratives, Fivush and colleagues used the coding system designed by Peterson and McCabe (1982). This Global Rating system results in the assignment of an overall rating of coherence to the narrative. In this system, narratives are rated on a coding scale from 1 to 4 based on the overall coherence of the narrative. A narrative that is rated as a 1 is disoriented and hard to read. A narrative that is rated as a 4 is very coherent and the events is the narrative are linked causally to each other. This coding scheme conceptualizes coherence based on an overall structuring of the narrative rather than the individual connectors between the parts of the narrative as the LIWC measure does. The Global Rating measure has also been used frequently by researchers (Bohanek, Fivush, & Walker, 2003; Fivush et al., 2003).

Baker-Ward and colleagues have used the coding system designed by John-Steiner and Panofsky (1987; cited in Hudson & Shapiro, 1991). Four types of devices are counted to measure the coherence of the narrative in the Causal Connections Measure. The four types of devices are: Simple (and), Temporal (then, next, first), Adversative (but, except), and Causal (because, if, so). This measure is concerned with the types of devices that are used to connect parts of the narrative. The number of these devices in relation to the total number of words is found and the proportion is used as the measure of coherence. This method of measuring the construct of coherence is similar to the
LIWC measure due to the fact that it is conceptualizes coherence based on the connective devices that are used.

These three different measures of coherence measure and hence implicitly define the construct in alternative ways. The analysis examined the consistency of measures of coherence as determined by the application of these alternative methods, and assessed the sensitivity of the different approaches.

Research Question and Hypotheses

The following research question and hypotheses guided the research.

Research Question: What is the relationship among alternative measures of narrative coherence and level of Story Grammar?

To explore alternative means of examining narrative coherence, several analyses were conducted on narratives provided by the members of the More Familiar and Less Familiar Event Groups. In these exploratory analyses, Story Grammar, coded following the system developed by Stein and Trabasso (1997), was used as a criterion measure of coherence. That is, methods of coding narrative coherence were accepted as valid if there is a strong, positive relationship between level of Story Grammar complexity and the measure of coherence.

In the first analysis, Story Grammar ratings were correlated with the narrative coherence scores obtained by applying the Causal Connections measure to the same narratives. In addition, the relationship between the Story Grammar ratings, Global Rating system coherence scores, and the coherence indicator derived from the occurrence of, insight, cognitive mechanisms, and causal words as operationalized by Pennebaker and Francis (1999) in the LIWC system was examined. The Causal Connections measure
and the LIWC system are based on similar constructs of coherence. The two measures both conceptualize coherence as determined by the devices that are used in the narrative to combine parts of the narrative. The LIWC system uses causal, insight, and cognitive mechanism words as the devices that are important in the construction of the narrative. In contrast, the Causal Connections measure uses Simple, Temporal, Adversative, and Causal devices to examine the construction of the narrative.

It was expected that the Causal Connections measure would emerge as the best predictor of the Story Grammar ratings because the Causal Connections measure is based on narrative structure, as is Story Grammar.

**Hypothesis 1: The Narratives of the More Familiar Event Group Participants Will Be More Structurally Complete than Those of the Less Familiar Event Group Participants, as Indicated by Story Grammar.**

**Hypothesis 2: The Narratives of the Less Familiar Event Group Participants, But Not Those of the More Familiar Event Group Participants, Will Increase in Structural Completeness, as Measured by Story Grammar, Over Time.**

The first formal hypothesis was that the children who participated in the CASL tournament would have narratives with higher levels of Story Grammar at Time 1 than the children who participated in the Challenge try-out. This is hypothesized due to the differences in familiarity between then events. A narrative of an event that is more familiar is hypothesized to be more coherent than an event that is less familiar and as such the tournament group would have a higher level of Story Grammar at time 1 than the try-out group. The second hypothesis was that the Challenge participants would show an increase in level of Story Grammar from the first to the second interview, although the
CASL tournament participants would not. This hypothesis was tested with a Group X Time repeated measures ANOVA, with Story Grammar ratings as the dependent measure.

**Hypothesis 3: The Narratives of the More Familiar Event Group Participants Will Be More Coherent than Those of the Less Familiar Event Group Participants**

**Hypothesis 4: The Narratives of the Less Familiar Event Group Participants, But Not Those of the More Familiar Event Group Participants, Will Increase in Coherence Over Time**

It was hypothesized that the individuals who participated in the CASL tournament would have a more coherent narrative at the first interview than those in the Challenge group. This is hypothesized due to the differences between the two groups on the familiarity of the events. The tournament group’s narratives are about an event that is more familiar than the try-out group and as such the tournament group should have more coherent narratives at time 1 than the tryout groups narratives. It was also hypothesized that the CASL participants would not show any change in the level of coherence from the first to second interview, whereas the Challenge participants would show an increase in their level of coherence from the first to the second interview. This hypothesis was tested using separate Group X Time repeated measures ANOVA, with the Causal Connections measure used as the dependent measures. A Group x Time interaction was predicted.

**Hypothesis 5: Changes in the Numbers of Reported Intrusive Thoughts will be Predicted by Coherence Scores.**

To test this hypothesis, change scores from the first to second interviews were calculated for both a measure of intrusive thoughts used in previous research, the Impact
of Events Scale (Horowitz, Wilner, & Alvarez, 1979) and the selected measure of narrative coherence. Decreases in the intrusive thoughts scores were expected to be associated with increases in the coherence scores. Hence, a negative correlation was predicted. The analysis was repeated using a measure of avoidance, also derived through the administration of the IES. It was expected that decreases in avoidance scores would be associated with increases in the coherence scores.

Method

Participants

Names of all registered tournament participants in the 10- and 11-year-old divisions were obtained from the major soccer organization in the target community, the Capitol Area Soccer League (CASL). The Capital Area Soccer League works to “provide and develop youth soccer opportunities that enhance character, family and community through the love of the game” (CASL, 2004). CASL provides multiple divisions for individuals of all ages in and near Wake County, North Carolina. These children’s parents were mailed a letter describing the research project (see Appendix A). A total of 980 potential participants were contacted by mail. Of these, 56 returned a response card (see Appendix B) and were subsequently contacted by telephone.

Twenty-five of those telephoned were planning on trying out for selection for a more competitive division, the Challenge Division, and were recruited to discuss their experiences at the try-outs when interviewed for the study. The Challenge group consists of players who wish to play at a more competitive level. These individuals must show that they can perform at the level needed in the challenge level during the try-outs. The Challenge level also serves to help the individuals develop their skills and become better
soccer players and then move onto higher-level teams. The participants who were interviewed for this study in the Challenge group had just reached the age at which they were able to try-out. Since this was none of these children had previously taken part in the try-outs for the Challenge division, this group will henceforth be referred to as the “Less Familiar Event Group.”

The remaining 31 children, who were not planning on trying out for the advanced division, were recruited to report their memory for their final tournament game. The participants who reported their memory for the final tournament game have participated in tournament games prior to the one that they reported, therefore this group will henceforth be described as the “More Familiar Event Group.” Of those, 20 and 31 in Less Familiar Event Group and More Familiar Event Group, respectively, completed participation. To encourage participation, children who completed the procedures were entered into a drawing for tickets to a Carolina Courage game for their team. Participants who did not complete participation did so due to the researchers’ lack of success in contacting parents to schedule interviews.

Among the Less Familiar Event Group participants, four children were not offered placements on teams in the competitive league. Although these children were interviewed, their data are not included in this investigation, resulting in 16 participants in the Less Familiar group condition. Among the children in the More Familiar Event Group, only the 10 who won their final tournament game are included in this investigation. An additional 6 participants who were interviewed about winning their final CASL tournament game in a previous study was also included in order to increase the n in this group. The additional six participants were the same age at the time of the event as
the other participants and responded to the same interview questions after a delay of comparable length. Hence, both groups consisted only of children who had experienced a successful outcome, either placement on a select team or victory in an important game.

The final sample thus consisted of 32 children, equally distributed across two groups. There were 7 female children in the Less Familiar Event Group, and 11 female children in the More Familiar Event Group. All children were rising or current fifth graders, and were 10 years old. Reflecting the characteristics of the soccer league from which they were recruited, the majority of the sample was comprised of white children from middle- and upper-middle income neighborhoods. Thirty of the participants were described by the interviewers as European-American; one was judged to be of Asian heritage; and one was described as African American.

Materials

Interview Protocol. The interview protocol began with rapport building questions in which the interviewer received the child assent to proceed with the interview and then talked with the participant about his or her preferred recreational activities. The participant was asked to talk about the tryouts or the last game that they played in the tournament. The participants were then prompted with “What else happened” and “Do you remember anything else” until two consecutive prompts with no additional information being provided (see Appendix C).

Background Questions. Participants were presented with open-ended questions to assess their interest and involvement in soccer. Specifically, they were asked how long they had been playing on a recreational soccer team, how many days that they kicked a soccer ball around for fun on an average week (see Appendix C).
**Performance Ratings.** Participants were also asked to complete Likert ratings about the athletic competition in which they participated. The responses were on a scale from one to seven. The participants rated how much they wanted to make a Challenge team/win the tournament game, how well they played during the tryouts/tournament, and how well they thought the competition (tryouts versus game) had turned out for them (see Appendix D). The same items were presented to participants in both groups, but the wording differed somewhat by condition to accommodate variations in the children's experiences.

**Impact of Significant Events Scale.** Participants completed the Impact of Events Scale (Horowitz, Wilner, & Alvarez, 1979) to determine how many intrusive thoughts they were having and how much they tried to avoid thinking about the event (see Appendix E). Half of the questions in this measure address avoidance of thinking about the event whereas the other half elicits information regarding intrusive thoughts about the event. Participants are asked to rate how often the item happens to them, by stating if it happens often, sometimes, rarely, or not at all. Internal reliability has been found for the Impact of Event Scale to be between $r = .79 - .92$ (Weiss, Marmar, Metzler, & Ronfeldt, 1996). Participants in the Less Familiar Event Group completed this measure at both interviews whereas the More Familiar Event Group participants did not complete this scale.

**Procedure**

The children in both the More Familiar and Less Familiar Event groups were interviewed twice within a 6-week period of time. The first interview took place within two weeks of the game ($M = 5.18$ days, range = 1-15 days) or tryouts ($M = 8.9$ days,
range = 2-15 days). The second interview took place about 6 weeks after the first interview for the game ($M = 53.81$ days, range = 33-89 days) or the tryouts ($M = 51.63$ days, range = 35-56 days). These delays did not significantly differ between the groups (first delay: $t = .014$; second delay: $t = .37$, $p > .72$). All interviews were conducted in the children's homes. All participants competed in the CASL tournament and some of those also tried out for placement on a team in the more competitive Challenge league. Those who participated in the try-outs were interviewed only about the try-outs and those who did not were interviewed about the tournament.

Eight interviewers completed all of the interviews: one professor, three graduate students, and four undergraduates. All of the interviewers were experienced in working with children and received extensive training prior to conducting the present interviewers. Undergraduate interviewers first observed a more experienced researcher as he or she interviewed a child, and then conducted their first interview under the direct supervisor of a professor or graduate student. Attempts were made to use different researchers for each participant’s initial and delayed interviewers, although scheduling constraints made it necessary to use the same interviewer for both interviews with a few participants. The same individuals interviewed participants in both the tournament and try-out groups. Eight different interviewers were involved in the Time 1 interviews and seven different interviewers were involved in the Time 2 interviews.

Due to the number of interviewers involved in the data collection, it was not possible to examine differences in children’s performance across all examiners. However, to explore possible interviewer effects, differences between assessments conducted by the principle investigator, who conducted 19 (30%) of the 64 total
interviews, and the remaining interviewers combined were evaluated. The length of the interviews conducted by the experimenter was compared to the length of the interviews conducted by the other interviewers in order to determine if any interviewer effects existed. No difference were found in the total number of words that were used in the narratives between the principal investigator and the remaining interviewers at Time 1, $t(63) = .00000012, p > .5$, or at Time 2, $t(63) = .00000013, p > .5$. No differences were found in the total number of propositions that were used in the narratives between the principal investigator and the remaining interviewers at Time 1, $t(63) = .0000376, p > .5$, or at Time 2, $t(63) = .000043, p > .5$.

The parent was asked for written permission for his or her child to participate in the study (see Appendix F). The child’s assent was obtained verbally, using a standard procedure (see Appendix G). All families who agreed to schedule home visits gave consent for the interview to proceed.

After informed consent was obtained, a rapport building session took place to insure that the child was comfortable talking with the interviewer. Immediately following this rapport building session, the participants were asked to tell the interviewer about the event. The interview prompted the children's reports in accordance with the protocol described above. Participants were then asked to provide the performance ratings described above. The participants who were trying out for the Challenge team, i.e., those in the Less Familiar Event Group, were also asked to complete a modified version of the Impact of Events Scale. The second interview followed the same procedure as the first interview.
To-Be-Remembered Events

The try-outs were the week following the weekend tournament so the children in both conditions were interviewed about their last soccer experience for the season. At the time of the first interview, most of the participants who had tried out for the higher-level team knew if they had made the team; by the time of the second interview, all of the participants knew if they had been placed on a team in the more competitive league. The four children who were not placed on Challenge teams were interviewed but their data are not included in this sample.

The tournament consisted of several games over the course of the weekend and thus the game in which they were interviewed about was the last of several games that they played that weekend. All of the individuals had participated in tournaments prior to this one. The recreational level teams compete in a tournament during the middle of the year and at the end of the year. This tournament was the second tournament of the year for these individuals. The individuals who were trying out for the higher-level league, Challenge, participated in between two and four days of try-outs, in which they practiced drills and played against each other in mock games. The tryout participants had not participated in try-outs before due to the fact that they had just reached the age that they were able to try-out for the higher-level league.

Coding

*Story Grammar.* Story Grammar was coded by classifying the narratives into one of six categories based on the structure of the narrative, as defined by Stein’s (1988) story-structure coding system. A more complete structure such as an embedded episode received a score of 6, whereas an incomplete structure such as a descriptive sequence
would receive a score of 1. These six structures in order from least complete to most complete were coded according to the following definitions.

*Descriptive sequences* (1) are stories that contain descriptions of states and objects with no temporal order. In this structure, the sequence would have events and settings, such as where a person is and what is happening, but the sequence is not in a temporal order. For example, the sequence could contain a dog getting a bath and then the person getting ready to bathe the dog.

*Action sequences* (2) are stories that contain descriptions of actions and end-states with a temporal but no causal order. In this structure, a story would have the temporal order of a person getting ready to bathe a dog and then the dog getting the bath but the causal order would not be stated. No explanation would be given for the order but rather the story would simply be an ordered list.

*Reactive sequences* (3) are story sequences in which the events causally impact the character and cause reactions and emotional responses but goals and goal- directed actions do not occur. In this structure, the causal and temporal order may be intact and explained but without a goal or goal- directed action. For example, the person could get ready to bathe the dog and complete the bath but the goal of preparing the dog for the dog show is not stated.

*Incomplete episodes* (4) are those stories in which events are causally structured into episodes (settings, initiating events, internal responses,
attempts, consequences, and reactions) but one or more of these categories are omitted. This type of structure is far more complete than those previously mentioned but it is still missing at least one important category. The setting introduces the characters, their traits, histories, relationships, and the time and space that enable the events to occur. The initiating event begins the episode with an event that “impacts upon the well-being of a character through physical occurrences or thought the character’s perceptions” (Trabasso & Stein, 1997). The initiating event leads the character to evaluate the event with internal responses, such as cognitions, perceptions, beliefs, values, and emotions. The internal response could include disappointment due to the initiating event. The attempts are those that are related to trying to achieve a goal outcome. The consequences are those that occur due to the attempts that are made to achieve the goal. The reactions are to the events that occur in the story. For example the story of a person trying to wash the dog may include the goal, setting, attempts, and consequences, but not the reactions to these consequences or actions. The story could be broken down into one part about the attempts to wash the dog and then a second part about the consequences of washing the dog, how washing the dog helped the dog at the dog show but they may leave out their reaction to the outcome.

*Complete Episodes (5)* are those stories that are the same as in incomplete episodes but include all of the basic categories. This structure is far more
complete than the incomplete episode due to the fact that this structure contains all of the basic categories.

**Embedded Episodes (6)** are stories that are the same as in complete episodes but the episodes are now connected by goal plans or outcome failures. In this structure, the outcome or goal plans of why the person is washing the dog and what other things that they are doing would be connected throughout the story to the outcome of how the dog did at the dog show.

Appendix H includes two narratives that differ with regard to the level of Story Grammar represented.

Inter-rater reliability was established by having two research assistants independently code 20% of the transcripts, selected at random, from both the first and second interviews. The coders were trained using 30% of the transcripts from this study. Once the coders became reliable with each other, 20% of the remaining transcripts, those that had been randomly selected and set aside prior to training, were coded for the first time by the coders to establish reliability. The remaining transcripts were then recoded by one of the two coders for use in the study. Inter-rater reliability, measured in terms of percent agreement (agreements/agreements + disagreements X 100) was obtained at a level of 90%.

**Coherence.** Coherence was coded in three ways, and the correspondence between coherence as assessed by the alternative scoring procedures was a focus of the analyses.

The first measure, the Causal Connections measure, was derived from the coding system designed by John-Steiner and Panofský (1987; cited in Hudson & Shapiro, 1991).
In this system, four types of narrative devices (conjunctions, adverbs, and propositions) were counted to obtain a measure of the coherence of the narrative. The four types of devices were: Simple (and), Temporal (then, next, first), Adversative (but, except), and Causal (because, if, so). Coherence was determined by the percent of narrative devices per total propositions. Two independent raters rated narratives and inter-rater reliability was established by having two research assistants independently code 20% of the transcripts, selected at random, from both the first and second interviews. Inter-rater reliability for this measure was obtained at a level of 91.67%.

The second coding system that was used was the Global Rating system designed by Peterson and McCabe (1982). This scheme results in the assignment of an overall rating, from 1 to 4, of coherence to the narrative. Two independent raters rated narratives and inter-rater reliability was established by having two research assistants independently code 20% of the transcripts, selected at random, from both the first and second interviews. Raters were trained using coded transcripts from a completed study, which had obtained high inter-rater reliability (Bohannan, Fivush, & Walker 2003). The raters first became reliable with an experienced coders’ assessments on the coded transcripts before they applied the coding scheme to the present transcripts. Following this, inter-rater agreement was established at 90.24%, based on the independent coding of 20% of the transcripts, selected at random.

The third type of system that was used to code coherence was the LIWC system designed by Pennebaker and Francis (1999). The software was used in the manner described in the manual. This computer-based system generated a count of words in each of the following categories: cognitive mechanisms, insight related and causal words.
Components of children's narratives. The narrative accounts provided by both the children in the Less Familiar and More Familiar groups were initially coded for the number of propositions. Propositions are defined as independent clauses including a subject and a verb. As in previous research (Fivush et al., 2003), propositions were scored as occurring when subjects or verbs were implied. Propositions were then coded as central, peripheral, evaluative, or metacognitive, as defined by Baker-Ward et al. (in press). Central propositions were defined as those that referred to something that had a direct effect on the tryouts or game (e.g. “I went to goalie tryouts”). Peripheral propositions were defined as those propositions that did not have a direct effect on the tryouts or the game (e.g. we sat in the shade during the water breaks”). Evaluative propositions were defined as those that included an assessment or conclusion about the event (e.g. “I played well”). Metacognitive propositions were defined as those that contained participant’s descriptions of cognitive activities, such as thinking, feeling, and remembering.

Results

This chapter begins with an assessment of the comparability of the two groups and a description of the narratives generated by the participants in each group. Addressing the research question, the next section explores the utility of alternative methods of characterizing narrative coherence by examining their concurrent validity and consistency over time. Tests of each of the five hypotheses are then presented. In testing the first four hypotheses, the effects of group and time on narrative complexity and coherence were examined. The final hypothesis was assessed by analyzing the effects of
the independent variables on participants’ disruptive thoughts (as measured by the intrusion and avoidance scores on the Impact of Events Scale).

Comparability of the More and Less Familiar Event Groups

Because a quasi-experimental design was used, existing differences between the More and Less Familiar Event groups presented a threat to validity. Hence, a series of preliminary analyses were conducted to examine the comparability of the groups.

Group differences in variables that could affect performance are summarized in Table 1. As shown in this table, the Less Familiar event participants were on the average 3.38 months older than the More Familiar event members, \( t(30) = 2.91, p = .007 \).

Follow-up analyses, however, revealed that age in months was not related to either of the major dependent variables, the Story Grammar ratings \( (r = -0.17, p > .05) \) or the IES scores \( (r = -0.33, p > .05) \). Moreover, the groups did not differ with regard to grade placement; all of the Less Familiar event participants and 10 of the More Familiar Event participants were rising 5\(^{th}\) graders, and the remaining six More Familiar Event participants were currently in 5\(^{th}\) grade. As further indicated in the table, there were no significant differences between the More and Less Familiar Event groups with regard to gender distribution, \( \chi^2 (1, N = 32) = 0.15, p > .05 \), or to enjoyment of soccer as indexed by number of days the children chose to play the game as a free-choice activity, \( t(30) = 0.26, p = .79 \).
Table 1

*Means (and Standard Deviations) of Background Characteristics by Group*

<table>
<thead>
<tr>
<th></th>
<th>Less Familiar</th>
<th>More Familiar</th>
<th>Statistical Test</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 16)</td>
<td>(n = 16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M (SD)</strong></td>
<td><strong>M (SD)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (in Months)</td>
<td>126.13 (2.66)</td>
<td>122.75 (3.80)</td>
<td><em>t</em> (15) = 2.91</td>
<td>= 0.007</td>
</tr>
<tr>
<td>Days Soccer / Week</td>
<td>4.69 (2.15)</td>
<td>5.20 (4.94)</td>
<td><em>t</em> (15) = 0.26</td>
<td>= 0.79</td>
</tr>
<tr>
<td>Days Between Interviews</td>
<td>53.81 (17.51)</td>
<td>51.63 (16.36)</td>
<td><em>t</em> (15) = 0.37</td>
<td>= 0.72</td>
</tr>
<tr>
<td>Percent Female</td>
<td>44.00</td>
<td>68.00</td>
<td>χ²(1, N=32) = 0.15</td>
<td>&gt; 0.05</td>
</tr>
</tbody>
</table>

An additional preliminary question was whether or not the two groups generated narratives of the same length. The following analysis was conducted to determine if an adjustment for differing narrative lengths between the two groups should be made in the major analyses. Table 2 presents the mean length of the event reports produced by the members of the More and Less Familiar Event groups at each interview. As shown in this table, no group differences were apparent for either the total number of words or for the total number of propositions at either interview occasion. The results of a 2 (group) × 2 (time) repeated measures ANOVA confirmed that there were no group or time differences and no interaction, *Fs* (1, 30) ≤ 1.15, *ps* ≥ .292. Hence, it was not necessary to adjust statistically for group differences in the length of the narratives in the tests of the hypotheses regarding narrative coherence. The mean number of propositions contained in the narratives was comparable to that reported in previous research involving children’s memory for soccer events (Baker-Ward, Eaton, & Banks, in press).
Table 2

*Mean length (and SD) of the narratives in words and propositions by group and interview.*

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less Familiar (n = 16)</td>
<td>More Familiar (n = 16)</td>
</tr>
<tr>
<td><strong>Number of Words</strong></td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td></td>
<td>101.56 (85.79)</td>
<td>93.38 (60.88)</td>
</tr>
<tr>
<td><strong>Number of Propositions</strong></td>
<td>15.63 (11.29)</td>
<td>22.69 (14.01)</td>
</tr>
</tbody>
</table>

In addition, group differences in the content of the narratives were examined. Narratives were coded for Central, Peripheral, Metacognitive, and Evaluative propositions as a proportion of the number of propositions in the narrative. This analysis was conducted to determine if possible group differences in narrative coherence should be interpreted within the context of variations in the nature of the information conveyed in the narratives. In addition, the extent to which participants’ narratives for the two events were focused on similar content as in prior studies involving similar samples was of interest. Table 3 describes the narratives with regard to the proportion of propositions classified into Central, Peripheral, Metacognitive, and Evaluative categories at each interview. As shown in this table, the majority of the propositions in the children’s
reports for each group were classified in the Central category, with a considerable proportion categorized as Evaluative, and with fewer occurrences of Peripheral and Metacognitive propositions. The content of the narratives was consistent with expectations based on previous research (cf. Baker-Ward, Eaton, & Banks, in press).

The effects of group and time on the content of the narratives were examined in a series of 2 (group) x 2 (time) repeated measures ANOVAs. Neither main effects nor interactions were observed in the analyses of Central, Peripheral, or Evaluative propositions, $F_s (1, 30) \geq 2.57, ps \geq .119$.

In contrast, a main effect of time, $F (1, 30) = 6.04, p = .02$, and a group x time interaction were observed in the Metacognitive proposition data, $F (1, 30) = 6.03, p = .02$, with the proportion of occurrences increasing across time in the More Familiar Event group (at Time 1, $M = 0.07, SD = 0.07$; at Time 2, $M = 0.10, SD = 0.09$) and decreasing across time in the Less Familiar Event group (at Time 1, $M = 0.08, SD = 0.10$; at Time 2, $M = 0.03, SD = 0.05$). There was no main effect of group. Because propositions coded as Metacognitive consisted of comments relating to the task of remembering, the members of the Less Familiar Event Group appeared to produce their narratives more easily at Time 2 than at Time 1, whereas the More Familiar Event participants devoted more effort to the delayed rather than the immediate interview.
Table 3

Mean proportion (and Standard Deviations) of Propositions in the children’s narratives coded into each category by group and time.

<table>
<thead>
<tr>
<th>Category</th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less Familiar (n = 16)</td>
<td>More Familiar (n = 16)</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>Range</td>
</tr>
<tr>
<td>Central Propositions¹</td>
<td>0.68 (0.30)</td>
<td>0.14 - 1.00</td>
</tr>
<tr>
<td>Peripheral Propositions¹</td>
<td>0.08 (0.12)</td>
<td>0 - 0.4</td>
</tr>
<tr>
<td>Metacognitive Propositions¹</td>
<td>0.08 (0.10)</td>
<td>0 - 0.31</td>
</tr>
<tr>
<td>Evaluative Propositions¹</td>
<td>0.16 (0.13)</td>
<td>0 - 0.43</td>
</tr>
</tbody>
</table>

¹ Ratio to Total Number of Propositions in Narrative
Alternative Measures of Coherence

A research question guiding this study was the relationship between the Story Grammar ratings and each alternative measure of coherence. This question was addressed in order to determine the currently used method of measuring coherence that would be most in line with the criterion measure of Story Grammar. Table 4 summarizes the coherence scores by group and time for each of the alternative measures. As indicated in this table, the children’s narratives can be characterized as being of limited coherence. The Story Grammar ratings are between 2 and 3, which correspond respectively to narratives that are classified as action sequences that contain descriptions of actions and end-states with a temporal but no causal order, and to reports that include reactive sequences in which the events causally impact the character and cause reactions and emotional responses but goals and goal-directed actions do not occur. Similarly, the Global ratings are between 1 and 2, which would represent narratives that are in a disoriented pattern such that they are confused, disoriented and hard to read, or those that are in a chronological pattern such that the narrative describes successive events that are sequentially or logically ordered. Because they involve counts rather than ratings, the LIWC scores, which are tallies of cognitive mechanisms, causal words, and insight words, and the scores on the Causal Connections measure will be discussed later.
Table 4

**Means (and Standard Deviations) for Coherence Measures by Time and Group**

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less Familiar ( n = 16 )</td>
<td>More Familiar ( n = 16 )</td>
</tr>
<tr>
<td><strong>M (SD)</strong></td>
<td><strong>M (SD)</strong></td>
<td><strong>M (SD)</strong></td>
</tr>
<tr>
<td>Story Grammar(^1)</td>
<td>2.31 (1.01)</td>
<td>2.44 (1.32)</td>
</tr>
<tr>
<td>Global Ratings(^2)</td>
<td>1.63 (0.72)</td>
<td>2.19 (0.75)</td>
</tr>
<tr>
<td>Causal Connections Measure(^3)</td>
<td>0.12 (0.04)</td>
<td>0.14 (0.04)</td>
</tr>
<tr>
<td>Cognitive Mechanism (LIWC)(^4)</td>
<td>6.31 (6.07)</td>
<td>7.03 (3.81)</td>
</tr>
<tr>
<td>Causal Words (LIWC)(^4)</td>
<td>0.89 (1.56)</td>
<td>0.59 (1.17)</td>
</tr>
<tr>
<td>Insight Words (LIWC)(^4)</td>
<td>1.43 (1.62)</td>
<td>1.03 (1.24)</td>
</tr>
</tbody>
</table>

---

\(^1\) Rating from 1 to 6

\(^2\) Rating from 1 to 4

\(^3\) Ratio to total words in narrative

\(^4\) Percent to total words in narrative

When Outliers were removed from data, re-analyses did not result in different findings so the outliers were not removed from the data.
Consistency across time. As a preliminary step in understanding the measures of coherence, the relationship between individuals’ ratings on the two assessments was examined. It was assumed that some stability of measurement, reflected in high, positive correlations between coherence scores at Time 1 and Time 2, was a criterion for a valid indicator of the construct. Such consistency, of course, may occur even if the expected changes in coherence across time are observed. In the absence of a significant relation between coherence at Time 1 and Time 2, the sensitivity and even the validity of the measure could be called into question.

Correlations were calculated between the scores obtained at the first and second interviews, which were conducted five weeks apart. These correlations are summarized in Table 5. As shown in the table, as expected, the Story Grammar ratings at Time 1 and Time 2 were highly related, \( r (32) = 0.73, p = .0001 \). No other measures were significantly correlated across time, as can be seen in Table 5. Even when an anti-conservative significance level of \( p < .05 \) was referenced no further significant relationships were found.

Because the delay interval was predicted to affect differentially coherence in the Tournament and Try-Out groups, consistency of measurement was examined separately within each group. No significant relationships between the Time 1 and Time 2 Global ratings or Causal Connections measure scores were revealed in these analyses.
Table 5

*Consistency of Measures over Time (Correlations between Time 1 and Time 2 scores)*

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Less Familiar</th>
<th>More Familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R$</td>
<td>$R$</td>
<td>$R$</td>
</tr>
<tr>
<td>Story Grammar</td>
<td>0.735***</td>
<td>0.643*</td>
<td>0.788**</td>
</tr>
<tr>
<td>Global Ratings</td>
<td>-0.020</td>
<td>-0.058</td>
<td>0.209</td>
</tr>
<tr>
<td>Causal Connections measure</td>
<td>0.244</td>
<td>0.359</td>
<td>0.110</td>
</tr>
<tr>
<td>Cognitive Mechanisms (LIWC)</td>
<td>0.435+</td>
<td>0.496+</td>
<td>0.375</td>
</tr>
<tr>
<td>Causal Words (LIWC)</td>
<td>0.377+</td>
<td>0.472</td>
<td>0.300</td>
</tr>
<tr>
<td>Insight Words (LIWC)</td>
<td>0.177</td>
<td>0.178</td>
<td>0.302</td>
</tr>
</tbody>
</table>

$+p < .05, * p < .01, **p < .001, ***p < .0001$

With regard to the LIWC and the Causal Connections measure, the only change in the results that was found when the groups were separated was the relationship between the Time 1 and Time 2 scores on the Cognitive Mechanisms and Cause Words in LIWC. Within the Less Familiar Event group, Cognitive Mechanism word counts at Time 1 and Time 2 were still moderately related, $r(16) = 0.49, p = .05$; however, no relation was observed within the More Familiar Event group, $r(16) = 0.37, p = .15$. Cause words in
the Less Familiar Event group tended to be related across the two interviews, $r (16) = .47$, $p = .065$, although this pattern was not observed with the More Familiar Event group, $r (16) = .30$, $p = .26$. These findings would suggest that group membership does not explain the lack of similarity in the amount or direction of change in the participant’s narratives over time. Had the correlations between the Time 1 and Time 2 coherence scores been high for the More and Less Familiar Event groups separately it would have suggested that the group affected the way that the participants’ narratives changed over time. The examination of consistency indicates that with the notable exception of the Story Grammar ratings, the measures of coherence as obtained at Time 1 do not predict performance at Time 2. Hence, questions regarding the sensitivity of the measures must be entertained.

*Relationship between each indicator and the criterion measure.* The next step in addressing the research question was to examine the relationship between the criterion measure, i.e., the Story Grammar ratings (and each of the alternative means of calculating coherence. Following this, the different measures of coherence were compared to each other. These analyses were separated in order to guard against Type 1 and Type 2 errors. These relationships are presented together in Table 6.

As shown in this table, a significant relationship between the Story Grammar ratings and the Global Ratings at Time 2 emerged, $r (32) = 0.45$, $p = .01$, although this relationship was not significant at Time 1, $r (32) = 0.32$, $p = .07$. A second relationship appeared between Story Grammar and the coherence measures. A significant relationship between Story Grammar and cause words from the LIWC measure was significant at both Time 1, $r (32) = 0.52$, $p = .002$, and Time 2, $r (32) = 0.46$, $p = .008$. 
The relationships between the different measures of coherence were then examined. The only significant correlations between the different measures of coherence at Time 1 were, not surprisingly, found in the LIWC categories; for Cause and Insight Words, \( r (32) = 0.499, p = .004 \). At Time 2, however, this relationship did not exist \( r (32) = 0.06, p > .10 \). The Cause and Insight words are subsets of the Cognitive mechanisms category. Given this the relationship between the Cause and Insight words and Cognitive mechanisms was not examined. The relationship between Cause and Insight words was examined since they are examining different parts of the narrative. Cognitive mechanisms were included as a category because it was expected to possible have a unique relationship with the other measures of coherence. The Story Grammar ratings and the Global ratings, which theoretically seem very similar and was predicted to be very highly related, did not show the strong relationship that was expected. Moreover, the association between the Causal Connections measure of coherence and the LIWC measures was not found as was expected.

The results of this systematic examination of the consistency and concurrent validity of the three most frequently used indices of narrative coherence raise concerns about the properties of these measures. Although it had been hoped that one measure previously used to operationalize narrative coherence would emerge as the most appropriate and that this indicator could be used in the tests of the hypotheses, reservations remain about each of the three measures.
Table 6

*Relationships Among Alternative Measures of Coherence*
*(Correlations between measures at Time 1 are below the diagonal; Correlations between the measures at Time 2 are below the diagonal)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Story Grammar</td>
<td></td>
<td>0.45**</td>
<td>0.26</td>
<td>-0.05</td>
<td>0.46**</td>
<td>-0.08</td>
</tr>
<tr>
<td>2 Global Ratings</td>
<td>0.33+</td>
<td></td>
<td>0.08</td>
<td>-0.09</td>
<td>0.20</td>
<td>-0.24</td>
</tr>
<tr>
<td>3 Causal Connections Measure</td>
<td>-0.03</td>
<td>0.24</td>
<td></td>
<td>0.34+</td>
<td>0.15</td>
<td>-0.33+</td>
</tr>
<tr>
<td>4 Cognitive Mechanisms++ (LIWC)</td>
<td>0.13</td>
<td>-0.24</td>
<td>-0.04</td>
<td></td>
<td>---</td>
<td>----</td>
</tr>
<tr>
<td>5 Cause Words (LIWC)</td>
<td>0.53**</td>
<td>-0.12</td>
<td>-0.04</td>
<td>----</td>
<td></td>
<td>0.06</td>
</tr>
<tr>
<td>6 Insight Words (LIWC)</td>
<td>0.18</td>
<td>-0.24</td>
<td>0.08</td>
<td>---</td>
<td></td>
<td>0.50**</td>
</tr>
</tbody>
</table>

*p < .10, *p < .05, **p < .01, ***p < .001.
++ The relationships between Cognitive Mechanisms and Cause and Insight words was not examined due to Cause and Insight words being a subset of Cognitive Mechanisms
Tests of Hypotheses

Because no superior measure of coherence emerged from the analyses reported above, all measures of coherence were used as separate dependent measures in the tests of the hypotheses in this exploratory investigation. Although Story Grammar ratings were determined to be consistent over time and related to a frequently used measure of coherence, Story Grammar has not been previously used in the literature as a measure of narrative coherence. Hence, although Story Grammar ratings are used as one dependent measure, they are not employed as the only indicator of coherence.

Hypotheses 1 and 2: Group differences in narrative complexity and change over time. Hypothesis 1 predicted that the narratives of the More Familiar Event participants would be more structurally complete than those of the Less Familiar Event participants at Time 1, as indicated by Story Grammar. Hypothesis 2 stated that the narratives of the Less Familiar Event participants, but not those of the More Familiar Event participants, would increase in structural completeness, as measured by Story Grammar. Story Grammar ratings in the Less Familiar Event group remained fairly stable across time, $M = 2.31$ ($SD = 1.01$) at Time 1, $M = 2.13$ ($SD = 0.96$) at Time 2. The More Familiar Event Group similarly demonstrated fairly stable performance over time, $M = 2.44$ ($SD = 1.32$) at Time 1 and $M = 2.56$ ($SD = 1.55$) at Time 2 (see Table 4).

In order to determine if the level of Story Grammar at Time 1 was related to event familiarity a chi-square analysis was conducted. In contrast to the prediction, no association was found between event familiarity group and level of Story Grammar at Time 1, $\chi^2 (1, N = 32) = 3.033$, $p = .55$. Hence, the Less Familiar Event group did not
produce more structurally complex narratives at Time 1 than the More Familiar Event group.

In order to determine if event familiarity led to relatively more increases in complexity over time, a chi-square analysis was conducted. The participants were split into two groups based on their direction of change in complexity over time. One group, whose complexity increased over time, was composed of 7 individuals, 3 from the Less Familiar Event group and 4 from the More Familiar Event group. The second group, whose Story Grammar ratings remained consistent over time, was composed of the remaining 25 individuals, 13 from the Less Familiar Event group and 12 from the More Familiar Event group. The relationship between group assignment and change category was examined. No association was found between change in complexity and the event familiarity group, \( \chi^2 (1, N = 32) = 0.183, p = .67 \). Thus, in contrast to the prediction, the level of event familiarity was not associated with the amount of change in complexity over time, in contrast to the hypothesized relationship.

**Hypotheses 3 and 4: Group differences in coherence and change over time.**

Hypothesis 3 stated that the narratives of the More Familiar Event participants would be more coherent than those of the Less Familiar Event Participants. Hypothesis 4 stated that the narratives of the Less Familiar Event participants, but not those of the More Familiar Event participants, would increase in coherence over time. An inspection of the mean ratings indicates that the mean ratings, as measured by the Global Ratings of coherence, changed in the expected direction. The Less Familiar Event Group ratings changed from \( M = 1.63 (SD = 0.72) \) at Time 1 to \( M = 2.38 (SD = 1.20) \) at Time 2. In contrast, the More
Familiar Event group decreased from Time 1 ($M = 2.19$, $SD = 0.75$) to Time 2 ($M = 1.94$, $SD = 0.93$) (Table 4).

In order to determine if the level of coherence as determined at Time 1 was related to event familiarity, a chi-square analysis was conducted. In contrast to the prediction, no association was found between event familiarity group and scores on the Global Ratings at Time 1, $\chi^2 (1, N = 32) = 20.3, p = .92$. Hence, the More Familiar Event group did not produce a more coherent narrative than the Less Familiar Event group at Time 1.

In order to determine the significance of the changes in coherence associated with event familiarity over time, a chi-square analysis was conducted on the ordinal data. The individuals were split into two groups; one whose coherence scores increased over time, and a second whose coherence scores either did not change or decreased over time. The first group, whose coherence scores increased over time, consisted of 14 individuals, 9 in the Less Familiar Event condition and 5 in the More Familiar Event condition. The second group, whose coherence scores either did not change or decreased over time, consisted of 18 individuals, 7 in the Less Familiar Event condition and 11 in the More Familiar Event condition. The relationship between group assignment and change category was examined. No association was found between the change in coherence and the event familiarity group, $\chi^2 (1, N = 32) = 2.03, p = .15$. Thus, the level of familiarity was not associated with the amount of change in coherence over time, in contrast to expectations.

The Causal Connections measure of coherence did not change in the Less Familiar Event group from Time 1 ($M = 11.81$, $SD = 4.09$) to Time 2 ($M = 11.15$, $SD = $
In the More Familiar Event group no change from Time 1 ($M = 14.33, SD = 4.23$) to Time 2 ($M = 14.23, SD = 8.73$) was found (see Table 4). In a Group X Time repeated measures ANOVA, no effect of time was found, $F(1, 30) = 0.08, p = .7$, and no interaction of time and group was revealed, $F(1, 30) = 0.04, p = .84$. There was a trend toward an effect of group, $F(1, 30) = 3.17, p = .09$; as expected, the Less Familiar Event Group had lower scores than the More Familiar Event group.

The three categories from LIWC that were of interest, Cognitive Mechanisms, Cause Words, and Insight Words, will be discussed separately. The Cognitive Mechanisms increased in the Less Familiar Event group from Time 1 ($M = 6.31, SD = 6.07$) to Time 2 ($M = 6.99 SD = 5.11$) (Table 4). In the More Familiar Event group the cognitive mechanisms increased from Time 1 ($M = 7.03, SD = 3.81$) to Time 2 ($M = 8.8, SD = 5.58$). In a Group X Time repeated measures ANOVA no effect of time was found, $F(1, 30) = 0.02, p = .89$. No effect of group was found, $F(1, 30) = 0.66, p = .42$. No interaction between time and group was found either, $F(1, 30) = .31, p = .58$. The hypothesized changes over time and group differences were not found for cognitive mechanisms.

Cause Words decreased in the Less Familiar Event group from Time 1 ($M = 0.89, SD = 1.56$) to Time 2 ($M = 0.58 SD = 0.84$) at Time 2. In the More Familiar Event group Cause words increased from Time 1 ($M = 0.59 SD = 1.17$) to Time 2 ($M = 0.68 SD = 0.93$) (Table 4). A Group X Time repeated measures ANOVA was conducted and no effects of time, $F(1, 30) = 0.91, p = .35$), group, $F(1, 30) = 0.09, p = .76$), or interaction between time and group, $F(1, 30) = .72, p = .40$ were found. The hypothesized changes over time and group differences were not found for the cause words.
Insight words decreased in the Less Familiar Event group from Time 1 (M = 1.43 SD = 1.62) to Time 2 (M = 1.04 SD = 1.22). In the More Familiar Event group insight words increased from Time 1 (M = 1.03 SD = 1.24) to Time 2 (M = 2.24 SD = 3.15) (Table 4). A Group X Time repeated measures ANOVA was conducted to determine if the change over time was significant and if there was a difference between the groups. No significant difference was found over time, $F(1, 30) = 2.03, p = .16$) or between groups $F(1, 30) = 0.56, p = .46$). Although the interaction between time and group approached significance, $F(1, 30) = 3.30, p = .08$, the trend was in the direction opposite to that hypothesized. Hence, no support was found for the hypothesis that change over time would occur for the Insight Words.

**Hypothesis 5: Changes over Time in Intrusions and Avoidances on the IES for the Try-Out Group.** As indicated in the Method section, data from the Impact of Experiences Scale (Horowitz, Wilner, & Alvarez, 1979) were available only for the Tournament participants. Table 7 presents the scores and ranges, for the Tournament participants on the Intrusion and Avoidance scale. In order to determine if the Intrusion and Avoidance scores within this group significantly changed over time, two t-tests were conducted. Intrusion scores decreased from Time 1 ($M = 2.19, SD = 0.59$) to Time 2 ($M = 1.97, SD = 0.60$). On the average, scores at both time periods corresponded to a reported frequency of “Rarely”. A t-test determined that this decrease was significant, $t(15) = 3.42, p = .004$. Avoidance scores were very low at both time periods, corresponding to an average rating of “Not at All.” The mean scores did not change from Time 1 ($M = 1.45 SD = 0.35$) to Time 2 ($M = 1.31 SD = 0.39$) (Table 7), $t(15) = 1.55, p = .14$. 
Table 7

Means (and Standard Deviations) for Intrusions and Avoidances as Reported on the IES Among the Less Familiar Event Group Members.

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>Range</td>
<td>M (SD)</td>
<td>Range</td>
</tr>
<tr>
<td>Intrusions</td>
<td>2.19 (0.59)</td>
<td>1.33-3.22</td>
<td>1.97 (0.60)</td>
<td>1.11-3.33</td>
</tr>
<tr>
<td>Avoidances</td>
<td>1.45 (0.35)</td>
<td>1.00-2.20</td>
<td>1.31 (0.39)</td>
<td>1.00-2.40</td>
</tr>
</tbody>
</table>

Relationship between Intrusions and Avoidances on the IES and Coherences Measures

Hypothesis 5 stated that changes in the number of reported intrusive thoughts would be predicted by coherence scores. To determine whether or not changes in coherence scores over time were related to changes in intrusive or avoidant thought, correlations between the coherence difference scores and changes in each of the IES scores were calculated. Table 8 presents the relevant correlations. As shown in this table, no significant relationships were revealed between changes in avoidance scores and
differences across time in any of the measures of coherence, even without an adjustment to the p value to control for Type I errors. Similarly, none of the correlations involving rated intrusions at Time 1 or Time 2 met the criterion for significance. Overall, the ratings of avoidances were very low and no significant relationships were found.

Summary

Overall, little support for the hypotheses was found. The hypothesized relationship between the More and Less Familiar Event groups and their level of Story Grammar and changes over time was not found. The hypothesized relationship between the More and Less Familiar Event groups and levels and changes in coherence over time were also not as clear as was expected. A trend for the Less Familiar Event group to have lower scores on the Causal Connections measure was found but was not significant. A trend for an interaction for time and event familiarity was found on the insight measure but the trend was in the opposite direction from what had been predicted. The hypothesized decrease in intrusions over time was found in the Less Familiar Event group while the expected decrease in avoidance scores was not found. No relationship was determined between the changes in coherence and changes in intrusions or avoidances.
### Table 8

*Correlations between Intrusions, Avoidance, and Coherence Measures*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intrusions Time 1</th>
<th>Intrusions Time 2</th>
<th>Change in Intrusions</th>
<th>Avoidance Time 1</th>
<th>Avoidance Time 2</th>
<th>Change in Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Story Grammar Time 1</td>
<td>-0.03</td>
<td>0.33</td>
<td>-0.34</td>
<td></td>
<td></td>
<td>-0.02</td>
</tr>
<tr>
<td>Story Grammar Time 2</td>
<td>0.34</td>
<td>0.00</td>
<td>0.07</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Story Grammar</td>
<td></td>
<td></td>
<td>-0.41</td>
<td></td>
<td></td>
<td>0.27</td>
</tr>
<tr>
<td>Global Ratings Time 1</td>
<td>-0.13</td>
<td>0.04</td>
<td>-0.03</td>
<td>-0.11</td>
<td></td>
<td>-0.11</td>
</tr>
<tr>
<td>Global Ratings Time 2</td>
<td>0.26</td>
<td>-0.09</td>
<td>-0.15</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Global Ratings</td>
<td></td>
<td></td>
<td>-0.09</td>
<td></td>
<td></td>
<td>0.14</td>
</tr>
<tr>
<td>Causal Connections Time 1</td>
<td>-0.25</td>
<td>0.25</td>
<td>0.53*</td>
<td>0.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Causal Connections Time 2</td>
<td>0.04</td>
<td>0.27</td>
<td>0.49*</td>
<td>0.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Causal Connections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.16</td>
</tr>
<tr>
<td>Variable</td>
<td>Intrusions Time 1</td>
<td>Intrusions Time 2</td>
<td>Change in Intrusions</td>
<td>Avoidance Time 1</td>
<td>Avoidance Time 2</td>
<td>Change in Avoidance</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>----------------------</td>
<td>------------------</td>
<td>------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Cognitive Mechanisms Time 1</td>
<td>-0.09</td>
<td></td>
<td>0.21</td>
<td>0.04</td>
<td></td>
<td>-0.22</td>
</tr>
<tr>
<td>Cognitive Mechanisms Time 2</td>
<td></td>
<td>0.44+</td>
<td>0.32</td>
<td>-0.13</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>Change in Cognitive Mechanisms</td>
<td></td>
<td></td>
<td>0.06</td>
<td></td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>Cause Words Time 1</td>
<td>0.16</td>
<td></td>
<td>0.39</td>
<td>-0.09</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Cause Words Time 2</td>
<td></td>
<td>0.21</td>
<td>0.27</td>
<td>0.06</td>
<td>-0.12</td>
<td></td>
</tr>
<tr>
<td>Change in Cause Words</td>
<td></td>
<td>-0.27</td>
<td></td>
<td></td>
<td>-0.12</td>
<td></td>
</tr>
<tr>
<td>Insight Words Time 1</td>
<td>-0.12</td>
<td></td>
<td>0.11</td>
<td>0.19</td>
<td>-0.05</td>
<td></td>
</tr>
<tr>
<td>Insight Words Time 2</td>
<td></td>
<td>0.35</td>
<td>-0.02</td>
<td>0.06</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td>Change in Insight Words</td>
<td></td>
<td>-0.11</td>
<td></td>
<td></td>
<td>0.16</td>
<td></td>
</tr>
</tbody>
</table>

*p < .10. *p < .05. **p < .01. ***p < .001.
Discussion

Despite the increasing attention researchers are giving to the coherence of children’s narratives (e.g., Fivush et al., 2003; Baker-Ward, Eaton, & Banks, in press), much remains to be learned about the processes through which individuals come to have well organized, cohesive accounts of their experiences. This exploratory investigation examined the role of familiarity with an event on the coherence of 10-year-old children’s initial accounts of the experience. In addition, the study examined changes in the coherence of the children’s event reports over a delay of five weeks. Because the Less Familiar Event, but not the More Familiar Event, had continuing, direct consequences, it was expected that the children’s reports of this experience would increase in coherence over time. The extent to which changes in coherence were associated with intrusive and avoidant thoughts was also examined, in an attempt to determine if Klein and Boals’ findings (2001) are applicable to positive as well as negative events,

This section begins with a discussion of issues in the measurement of coherence, because the results of the exploration of the concurrent validity of alternative measures have implications for the interpretation of the tests of the hypotheses. Next, the extent to which the findings supported the hypotheses will be examined and possible explanations for the obtained results will be explored. Finally, the limitations of this research will be examined, and possible future directions will be discussed.
Findings and Implications

Coherence Measures

Although Story Grammar ratings were found to be consistent over time as expected, the measures of coherence obtained at the first and second interviews were not correlated for the remaining indicators. Further, in contrast to expectations, aside from typically observed interrelationships among components of LIWC, the alternative measures of coherence did not consistently correlate with each other. Moreover, Story Grammar ratings were only inconsistently related to the coherence measures. Specifically, Story Grammar ratings and the Global Ratings were moderately correlated at Time 2, and Story Grammar and Cause words in LIWC were related at both Time 1 and Time 2. Hence, concurrent validity for the measures of coherence used in previous investigations was not established in this research.

It can be argued, however, that the consistency of these measures over time is not a good indicator of the viability of the coding schemes. In this investigation, experiences intervening between the first and second interview were not assessed. It is possible that individuals differed with regard to their exposure to factors that enhanced the coherence of the event representation. For example, it is possible that children’s conversations with parents about the event increased the coherence of the representation over time in some but not all cases (Ackil, Van Abbema, & Bauer, 2003). Arguing against this possibility, however, is the fact that the coherence measures were not more variable at the delayed than at the initial interview.

Why were Story Grammar ratings, in contrast to the measures of coherence, generally consistent across the two interviews? Story Grammar ratings were accepted as
the criterion measure in this investigation because they were theoretically based and because they provided more information than other ratings. The results support the choice of this measure.

The lack of a majority of the expected significant relationships among the different measures of coherence may result from a difference in what the alternative indicators are measuring. Coherence and Cohesion are terms that are often used interchangeably, when in reality they are different constructs. Cain has defined coherence as referring to the “event structure of the narrative, which is how the events are related to one another” (2003, p. 336). In contrast, cohesion within the narrative is “established by linguistic devices, such as interclausal connectives, which express the relations between the sentences or clauses that make up the story” (Cain, 2003, p. 336). The different measures of coherence used in this study map onto these diverging definitions of coherence and cohesion. The Global Ratings measure fits with this definition of coherence and in fact is very similar to the measure of coherence that Cain used in her study. As operationalized by Cain and Oakhill (1996) in their research, coherence is the global quality of interconnected among all elements in a story. By this definition, the Causal Connections measure scores are too limited to provide an assessment of coherence; rather, they provide an estimation of cohesiveness as defined by Cain.

At first impression, the LIWC measure would also appear to provide an indication of cohesion, since its use results in a count of specific words that are found in the narrative. The words that are observed in the LIWC measure, specifically cognitive mechanisms, cause and insight words, could be seen as devices that describe the relationship between sentences or clauses in the narrative. However, these words only
partially overlap with the categories included in the Causal Connections index, and would appear to provide different information centering around the individual’s thought processes rather than the structure of the narrative. Hence, the LIWC measure does not meet a definition of coherence; rather, it provides an assessment of specific aspects of the content of the narrative. For this reason, the lack of correspondence between the LIWC categories and the index of cohesion derived through the use of the Causal Connections measure is not really surprising. It should be noted that the LIWC causal words were correlated with the Story Grammar ratings at both interviews. It seems reasonable to conclude that causal words provide one indicator of coherence, in that they are vehicles for coordinating separate acts within an event (e.g., “I knew we were in trouble because our best player had to leave the field,”). However, causal words provide an incomplete assessment of coherence.

The Global Ratings, which focus more on the intercoordination of the content of episodes within the narrative, appear to provide an indicator of coherence as defined by Cain, in contrast to cohesiveness. From this perspective, these ratings should be strongly associated with both the LIWC causal words and the Story Grammar ratings. No relationship with causal words was obtained, although a modest relationship with Story Grammar ratings was obtained. It should be noted that the Global Ratings have a restricted range, with only four difference levels of coherence assessed. It is possible that this compression of the data explains at least in part the absence of a clear relationship between conceptually similar assessments.

How should researchers measure coherence? It appears that global ratings, rather than a count of specific words or grammatical structures, provide the most complete
assessment of a construct defined on the basis of an entire narrative structure. However, the Global Ratings applied in previous research appear to provide insufficient information. Where Story Grammar ratings offer several advantages, including their consistency over time as identified in this investigation, they may less than ideal in investigations with children, as discussed below.

Changes over Time

The first and second hypotheses, that Story Grammar ratings would be higher for the More Familiar Event Group participants than the Less Familiar Event Group members at the initial interview and that the Less Familiar Event Group participants would increase in their narrative complexity over the delay interview, was not supported. The More Familiar group did not have significantly higher Story Grammar levels than the Less Familiar group at the initial interview, and no significant change over time was seen in the Story Grammar measure for either group.

Neither of the groups had especially high levels of complexity at either Time 1 or Time 2. These rating ranged from 2.13 to 2.55, corresponding to the category of Action Sequences. In contrast, Story Grammar ratings of the complexity of slightly younger children’s stories in describing a sequence of pictures are around category 5, Complete Episodes (Trabasso & Stein, 1997). Although it is possible that increased familiarity does not necessarily result in greater complexity, the lower than expected ratings may reflect the nature of the task.

Previous research has applied Story Grammar to the measurement of stories generated by participants who have been shown a series of pictures by the experimenter (e.g., Poulsen, Kintsch, Kintsch, & Premack, 1979). To the best knowledge of this
writer, Story Grammar ratings have not previous been applied to individuals’ narrative accounts of personal experiences. When participants are recalling their memory for an event, as in this study, they might not have the benefit of the structure that is implicit in the experimenter’s sequence of related pictures (as was the case in previous research). In the present investigation, children were required to both identify (or create) and then apply an event structure to an experience that was extended in time and space. This could result in Story Grammar ratings that were lower than those obtained in the less demanding laboratory task. Hence, the failure to demonstrate an increase in narrative complexity among the children in the More Familiar Event group could reflect a developmental limitation in task performance.

It is also possible that the groups did not actually differ with regard to event familiarity to the extent assumed in designing the investigation. It was believed that the More Familiar Group would have a general schema to apply to their narrative of the event due to the fact that the tournament in which they participated could be considered to be an instantiation of a more generic representation. If this were the case, then it would be expected that the More Familiar Group would have higher Story Grammar ratings than the Less Familiar Group. This, however, was not observed. It may be possible that the general representation of the game did not help to support the personal narrative of a specific competition. It is also possible that the children in the Less Familiar Event group, who had had comparable experience with soccer competitions as those in the More Familiar Event group, adapted their representation of other soccer events to guide their new experience with try-outs. In support of this interpretation, Fivush (1984) reported that new kindergarten students formed scripts for the events of the school day.
almost immediately and suggested that they adapted their scripts for the events of the
preschool day to the kindergarten experience. It should also be noted that the narratives
provided by the two groups did not differ with regard to content, as defined on the basis
of previous research (Baker-Ward, Eaton & Banks, in press), suggesting that their
approaches to the two experiences were similar in some important regards.

The third and fourth hypotheses, that More Familiar Event Group participants
would have more coherent narratives than Less Familiar Event Group participants and
that Less Familiar Event Group participants but not More Familiar Event Group team
members would increase in narrative coherence over time, were not supported. As
discussed above, issues in measuring coherence are relevant in interpreting this outcome.
In addition, questions about the validity of the manipulation of familiarity must be
entertained.

Intrusions

The fifth hypothesis, which was that intrusions would decrease over time, was
supported. Although the reported intrusions were low in frequency, they nonetheless
decreased significantly over time as measured by the Impact of Events Scale. No
differences, however, were observed in the measure of avoidances. Because decreases in
intrusions could represent simply the diminishing of the perceived importance of the
experience over time, rather than an increase in coherence, these results must be
examined within the context of the relation between corresponding changes in intrusions
and in coherence. This analysis formed the test of the sixth hypothesis. In contrast to
expectations, the predicted negative relationship between change scores for intrusions
over time and change in coherence scores was not observed. This finding is consistent
with the explanation that the decrease in intrusions represents a decline in the saliency of
the event rather than a direct reflection of changes in the nature of the event representation.

*Developmental Implications*

As age was not a variable in this investigation, the findings cannot be directly applied to questions regarding developmental change. The pattern of results, however, suggests the importance of examining autobiographical memory within a developmental context.

As discussed above, determining the familiarity of an event is more complex than identifying previous experiences within the same event context (see Fivush, 1984). As noted, the results are consistent with the possibility that children applied previous knowledge about soccer practices and games to the new experience of trying out for a competitive league. Understanding the processes through which children at different ages apply event knowledge across contexts could extend the understanding of the role of event schemas in children’s transitions to new environments as well as to their autobiographical memory.

Further, as also noted above, children’s Story Grammar ratings were lower in the ecologically valid contexts examined in this research than in laboratory investigations. Interestingly, however, children in the present study used more cognitive mechanisms, as measured by LIWC, than did a sample of children of similar average age included in a recent report by Pennebaker and Stone (2003). Children in the present study were reporting recent, specific experiences, whereas those examined by Pennebaker and Stone were narrating self-selected, more distant and broadly defined events. This pattern conveys the importance of examining narrative reports from a sociocultural perspective.
Event Familiarity and Coherence

Scaffolding as provided by both other individuals (e.g., in mother-child conversations) and by task supports (such as the implicit structure conveyed in a picture sequence or a prompt) may be important determinants of children’s levels of narrative complexity and coherence. Hence, the results provide support for examining autobiographical memory development as an interaction between person and task variables (as described by Cairns, Costello & Elder, 1996).

The findings provide additional support for the examination of autobiographical memory as a process that extends well beyond middle childhood. The levels of coherence found with this sample were moderately low, suggesting that a developmental change would be likely to occur at some point in adolescence, in which individuals are found to produce more coherent narratives as measured by some of the indicators used in this study. For example, Habermas and Paha (2001) found that the life story narratives of adolescents at ages 12, 15, and 18 increased in coherence with age. Coherence was measured using causal links between statements. Habermas and Paha were interested in looking at coherence globally in terms of biographical information, links between events and personal change, and comparisons of the past and the present. Could it be that the moderate level of coherence that was found in the current study reflects children’s limited capacity to use a complex self-schema as an organizing framework in autobiographical memory?

Further research is needed to examine age-related differences in narrative coherence. At present, cross-sectional data from childhood through adulthood are unavailable. Bauer, Stennes, & Haight (2003) examined changes in young adults’ reports of events that had transpired when they were at different ages and found effects of gender
but not of age. More information regarding the production rather than the retrospective report of such narratives is needed.

**Limitations and Future Directions**

As discussed previously, the adequacy of the operationalization of event familiarity must be questioned in this investigation, presenting a threat to internal validity. Another limitation of this study is the small sample size, and the resulting low power.

Further research within this paradigm would be additionally strengthened including a group that experienced a negative event. It seems likely that children who experience a disappointing outcome would be more likely to have a greater need to reflect upon the event, and might consequently show change in coherence over time (see Klein & Boals, 2001). Supporting this possibility, previous research has found greater levels of coherence in children’s accounts of negative relative to positive experiences (Baker-Ward, Eaton & Banks, in press). In addition, further work would be strengthened by the inclusion of information regarding the perceived importance of the event obtained in advance of the competition, a longer delay interval, and information about experiences intervening between the event and the delayed report, such as relevant parent-child conversations (Ackil, Van Abbeman, & Bauer, 2003). Further, given that the participants demonstrated relatively low levels of narrative coherence, cohesion, and complexity, it would have been desirable to have had an assessment of their narrative skills as previously examined in the literature. Data regarding the children’s typicality in forming sophisticated narratives for stories would be useful in examining the applicability of indicators of narrative to event memory as well as text processing.
A possible criticism of this study was its focus on subjective rather than objective memory; that is, the accuracy of the participants’ reports was not examined. As argued by Fivush and Baker-Ward (in press), whereas questions regarding the accuracy of individuals’ memory are important, the ways in which people make meaning of their experiences is an important and under-studied component of autobiographical memory. Narrative coherence, the central focus of this investigation, does not depend upon the veridicality of the report. Thus, the question of the accuracy of the narratives was not addressed in this study.

In summary, further research is needed to understand the processes through which children come to form coherent representations of significant life experiences. The possible future directions described above would help to link together the clinical, social, and developmental literatures on event memory.
References


Appendix A. Information Letter for Parents

[Address]

May, 2002

Dear Parent or Guardian,

We are inviting all young athletes who are participating in the CASL Cup to take part in a research project. The purpose of this research is to examine children’s memories for normally occurring, emotional events and their perceptions of their own performance during athletic events. Of course, only children whose parents give their written permission will be included. We are writing to describe our project, and to ask if we may call you to discuss your child's participation in the study.

With your consent, we will schedule an interview in your home to be conducted at a time convenient for your family a few days after the tournament. The interview consists of questions regarding actions that occurred or could have occurred during the game. For example, a child might be asked “Tell me about the game”, or “What was the score?” Each child will be interviewed a second time, about six weeks after the first interview. Similar questions will be asked during each assessment. In addition, during the second visit, we will ask your child to complete two widely used questionnaires so that we can obtain some information about the importance of athletic involvement and the particular competition to the young participants. (From example, "Some children would rather play outdoors in their spare time, but other children would rather watch TV. How about you?") Each visit will involve less than 30 minutes and will be conducted by members of our research team, all of whom are undergraduate or graduate students who are skilled in working with children and who will be supervised by a faculty member in the Department of Psychology. All interviews will be audio taped for data collection purposes only.

CASL has agreed to all of the procedures in this research. To protect your child’s rights, the information in the study records will be kept strictly confidential (as described in the accompanying consent form), and no reference will be made in oral or written reports that could link your child to the study. We want to know about young child’s memories in general at specific ages.

Your child’s participation in this study is voluntary. If you allow him or her to participate, you may withdraw from the study at any time. If your young athlete chooses to withdraw from the study before data collection is completed, his or her wishes will be respected and any data will be destroyed. As a token of our appreciation, each young athlete will be entered in a drawing for 15 tickets to a Carolina Courage game.

Please return the enclosed stamped, self-addressed post card or email Dr. Baker-Ward at Lynne_Baker_Ward@NCSU.EDU if we may call you at your convenience to discuss this project further. Thank you very much for your consideration.

Sincerely,

Appendix B. Response Card

Yes, I am interested in learning more about the NC State Young Athletes Research Project and discussing the possibility of my child's participation.

Child's Name: ____________________________

Team: ____________________________

Child's Last Soccer Activity This Season? ________ CASL CUP

__________ Challenge Try-Outs

Telephone(s): ____________________________

Best times to call: ____________________________
Appendix C. Background questions for Challenge group

INTERVIEW PROTOCOL (Version A)

Section 1: Introduction (Rapport Building, Identification, Permission)

**Interviewer:** Hello, [child's name]. My name is [interviewer's name]. I'm a student at NC State. Thank you for talking with me today. I want to learn more about how kids like you remember important things that happen to them.

Your [mom/dad/parents] have given me permission to talk with you about Challenge try-outs. But I need to know that it's OK with you, too. Here's a permission form. I'm going to read it to you . . . Do you have any questions . . . Are you willing to talk with me? Thanks so much!

Get child's written permission to take part in the study . . .

I'm going to ask you some questions. Remember to let me know if I ask you something you don't want to talk about, or if you want to stop.

I didn't see what went on at your soccer tryouts, so don't leave anything out when we talk. I'm going to tape record what you say so I don't have to write everything down. Is that OK?

Turn on tape recorder now . . . Make sure that tape recorder is working . . . Test with child and play it back.

First, I'd like to get to know a little about you. Would you please tell me your birth date? Make sure to get the month and the year.

**Child:**

**Interviewer:** Right. Tell me about some of the things you like to do.

**Child:**

**Interviewer:** Comment on child's responses. Ask for elaborations of responses. If you have similar interests, share them with the child. Continue until child has
made eye contact with you and has spontaneously provided some information in response to general prompts.

*Interviewer:* If child does not mention soccer, make transition. I know that one of the things you do is play soccer. What is the name of your team?

*Child:*

*Interviewer:* How long have you been playing soccer on a recreational team like the one you are on now?

*Child:*
Appendix C. Background questions for CASL group

INTERVIEW PROTOCOL (Version A)

Section 1: Introduction (Rapport Building, Identification, Permission)

Interviewer: Hello, [child's name]. My name is [interviewer's name]. I'm a student at NC State. Thank you for talking with me today. I want to learn more about how kids like you remember soccer games.

Your [mom/dad/parents] have given me permission to talk with you about soccer. But I need to know that it's OK with you, too. Here's a permission form. I'm going to read it to you . . . Do you have any questions . . . Are you willing to talk with me? Thanks so much!

Get child's written permission to take part in the study . . .

I'm going to ask you some questions. Remember to let me know if I ask you something you don't want to talk about, or if you want to stop.

I didn't see everything that went on in your game, so don't leave anything out when we talk. I'm going to tape record what you say so I don't have to write everything down. Is that OK?

Turn on tape recorder now . . . Make sure that tape recorder is working . . . Test with child and play it back.

First, I'd like to get to know a little about you. Would you please tell me your birth date? Make sure to get the month and the year.

Child:

Interviewer: OK. What's the name of your school?

Child:

Interviewer: What grade are you in now?

Child:

Interviewer: Right. Tell me about some of the things you like to do.

Child:
**Interviewer:** Comment on child’s responses. Ask for elaborations of responses. If you have similar interests, share them with the child. Continue until child has made eye contact with you and has spontaneously provided some information in response to general prompts.

**Interviewer:** If child does not mention soccer, make transition. I know that one of the things you do is play soccer. What is the name of your team?

**Child:**

**Interviewer:** How long have you been playing soccer on a recreational team like the one you are on now?

**Child:**
Appendix C. Interview protocol for Challenge group

Section 2: Narrative Generation

*Interviewer:* I know that you just tried out for Challenge. I want to know about your Challenge tryouts. Tell me what happened.

*Child:

*Interviewer:* [Prompt as needed to keep the child's narrative flowing. Acceptable prompts include:]

Tell me some more about that.
OK, what else happened?
Anything else?

You may also repeat what child said without adding anything . . .
You told me about the goal, you told me about the foul . . . what else happened?]

After child has been unable to generate any additional information after interviewer has repeated what child said, interviewer says one more time:

What else happened?

If child says "That's all," then interviewer asks:

Do you remember anything else?

When child cannot provide additional information, then interviewer says:

You're doing a great job! You're really helping me out.
Appendix C. Interview protocol for CASL group.

Section 2: Narrative Generation

**Interviewer:** I know that the [team name] just played in a big tournament, the CASL Cup. I want to know about the last game you played in the CASL Cup. Tell me what happened.

**Child:**

**Interviewer:** [Prompt as needed to keep the child's narrative flowing. Acceptable prompts include:

Tell me some more about that.
OK, what else happened?
Anything else?

You may also repeat what child said without adding anything . . .
You told me about the goal, you told me about the foul . . . what else happened?]

After child has been unable to generate any additional information after interviewer has repeated what child said, interviewer says one more time:

What else happened?

If child says "That's all," then interviewer asks:

Do you remember anything else?

When child cannot provide additional information, then interviewer says:

You're doing a great job! You're really helping me out.
Appendix D. Likert Rating Scales for Challenge participants

Interviewer: OK, think about the time just before the tryouts started. You knew that it was a really big deal and that not everyone would be drafted. How much did you want to make a Challenge team? Let's use my scale again. [Show Likert scale.]

- 7 (I wanted to make it as much as I've ever wanted anything in my life.)
- 6 (I wanted to make it a whole, whole lot.)
- 5 (I wanted to make it a lot.)
- 4 (I wanted to make it a quite a bit.)
- 3 (I wanted to make it a medium amount.)
- 2 (I wanted to make it but just a little.)
- 1 (I didn't care if I made it or not.)

Interviewer: How do you feel about how you played during the Challenge try-outs? [Likert scale.]

- 7 (I played my best ever.)
- 6 (I played really well.)
- 5 (I played pretty well.)
- 4 (I played OK.)
- 3 (I didn't do badly but I didn't do well.)
- 2 (I didn’t play very well.)
- 1 (I played my worst ever.)

Interviewer: How do you feel now about how Challenge try-outs turned out for you?

- 7 (It was the best thing that every happened to me.)
- 6 (I feel really good about how it turned out.)
- 5 (I feel pretty good about how it turned out.)
- 4 (I feel OK about how it turned out.)
- 3 (I feel pretty disappointed about how it turned out.)
- 2 (I feel really disappointed about how it turned out.)
- 1 (It was the worst thing that ever happened to me.)
Appendix D. Likert rating scales for CASL participants

OK, keep thinking about the time just before the game started. You knew that it was a really big game and that only one team would win. How much did you want to win the game? Let's use my scale again. [Show Likert scale.]

- 7 (I wanted to win as much as I've ever wanted anything in my life.)
- 6 (I wanted to win a whole, whole lot.)
- 5 (I wanted to win a lot.)
- 4 (I wanted to win a quite a bit.)
- 3 (I wanted to win a medium amount.)
- 2 (I wanted to win but just a little.)
- 1 (I didn't care if we won or lost.)

*Interviewer*: How do you feel about how your last CASL cup game turned out for you? [Likert scale.]

- 7 (It was my best game ever)
- 6 (It was a really good game for me.)
- 5 (It was a pretty good game for me.)
- 4 (It was an OK game for me.)
- 3 (It wasn't awful but it wasn't good.)
- 2 (I didn’t play very well.)
- 1 (It was my worst game ever.)

*Interviewer*: How do you feel about how your team played this game? *Likert scale.*

- 7 (It was our best game ever)
- 6 (It was a really good game for us.)
- 5 (It was a pretty good game for us.)
- 4 (It was an OK game for us.)
- 3 (It wasn't awful but it wasn't good.)
- 2 (We didn’t play very well.)
- 1 (It was our worst game ever.)
### MY THOUGHTS ABOUT SOCCER TRY-OUTS

_In the list below, we have written down some of the things people say about important things that have happened to them. Think about the Challenge Try-Outs. While I read each sentence to you, think about what has happened to you DURING THE PAST SEVEN DAYS—_but don't include things we've done in this interview._ Then, choose the words that tell how often the thing described in the sentence happened. For example, if you did not talk with anyone about soccer try-outs except me today, you would pick "Not at all" for the first sentence. But if you talked about try-outs a lot with your mom or a friend, you would say "Often."_ OK, are you ready? Some of the things I say may not have been something that happened to you because different people have different experiences. _If something doesn't describe what happened to you, just pick "Not at all." Any questions? OK. Remember that these questions are about Challenge Try-Outs and things that happened to you during the past seven days (but not in the interview)._

<table>
<thead>
<tr>
<th>Things People Do This Week</th>
<th>How Often This Happened to Me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I talked (wrote a letter or sent email/instant message) about it.</td>
<td>Not at all</td>
</tr>
<tr>
<td>2. I thought about it when I didn’t mean to.</td>
<td>Not at all</td>
</tr>
<tr>
<td>3. I kept myself from getting upset when I thought about it or was reminded of it.</td>
<td>Not at all</td>
</tr>
<tr>
<td>4. I tried to take it out of my head.</td>
<td>Not at all</td>
</tr>
<tr>
<td>5. I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my mind.</td>
<td>Not at all</td>
</tr>
<tr>
<td>6. I had waves of strong feelings about it.</td>
<td>Not at all</td>
</tr>
<tr>
<td>7. I had dreams about it.</td>
<td>Not at all</td>
</tr>
</tbody>
</table>
8. I stayed away from things that made me think about it. | Not at all | Rarely | Sometimes
9. I felt as if it hadn’t happened or it wasn’t real. | Not at all | Rarely | Sometimes
10. I tried not to talk about it. | Not at all | Rarely | Sometimes
11. Pictures about it popped into my mind. | Not at all | Rarely | Sometimes
12. Other things kept making me think about it. | Not at all | Rarely | Sometimes
13. I knew that I had a lot of feelings about it even though it was over. | Not at all | Rarely | Sometimes
14. I tried not to think about it. | Not at all | Rarely | Sometimes
15. Any reminder brought back feelings about it. | Not at all | Rarely | Sometimes
16. I wrote about it in a journal or diary. | Not at all | Rarely | Sometimes
17. I am still bothered by it. | Not at all | Rarely | Sometimes
Appendix F. Informed Consent for Parents

North Carolina State University
INFORMED CONSENT FORM
(For Parents)

Title of Study
Memory and emotion: The influence of valence on recall for a salient event

Principal Investigator
Kimberly L. Eaton, M.S.

Faculty Sponsor (if applicable)
Lynne Baker-Ward, Ph.D.

You are invited to participate in a research study. The purpose of this study is to examine children’s memories for a normally occurring, emotional event. We are testing the idea that the importance of an event to individuals and the emotion associated with the experiences affect their memory for the event and the meaning they give the experience.

INFORMATION
1. Participants in the study will be recruited from teams participating in the CASL Cup Soccer Tournament on May 19 or Challenge Try-Outs the following week.
2. Young athletes whose parents provide written consent for their participation will be visited in their homes at times selected by the family. All participants will be asked to report their last soccer event of the season (Tournament or Try-Outs). Children reporting the tournament will be interviewed about their experiences during an initial visit. Then, at a second interview, the memory questions will be repeated and the child will be asked to complete two questionnaires eliciting their involvement in athletics and their response to the competition. Those describing try-outs will complete three interviews that are identical in content to those described above, with one held shortly after try-outs, one about two weeks later, and the final interview a total of six weeks after the event. The interview and administration of questionnaires will take approximately 30 minutes at each visit, and the total time your child will participate in this study will be about one hour and a half or less for most participants.

RISKS
Some children may recall negative game-related events in their interviews. Our purpose is not to manipulate the child’s experience in any way, and children will be assured that we are asking about aspects of the game only to understand how children remember exciting events. Further, they will be told that individual scores will not be reported since the research is not intended to compare their memory to that of other team members, but rather to develop a general picture of how children remember events. Children will be assured that it is often difficult to remember things accurately and that it is quite normal for people to confuse details for specific events. We will make every effort to correct any possible misconceptions resulting from the questions, and remove any concern children might have if they become aware that they provided incomplete or incorrect information in response to the questions.
BENEFITS
The process of telling or writing about an event has been demonstrated to improve mental and physical health. Children in this study will be guided through a series of questions on two occasions that may help them to organize their thoughts about their experience of the game, thus forming a more coherent personal narrative about the event.

CONFIDENTIALITY
The information in the study records will be kept strictly confidential. Data will be stored securely and will be made available only to persons conducting the study unless you specifically give permission in writing to do otherwise. No reference will be made in oral or written reports which could link your child to the study. Tapes of the interviews with children will be destroyed after a transcript (omitting your child’s name) has been typed, or after one year, whichever comes first.

COMPENSATION
Participants will be entered in a drawing for tickets for their team (up to 15 members) for a Carolina Courage game. Young athletes who chose to withdraw after the first interview remain eligible for this prize.

CONTACT
If you have questions at any time about the study or the procedures, you may contact either of us at the numbers below. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Matthew Zingraff, Chair of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/513-1834) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148).

PARTICIPATION
Your participation and your child’s participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

CONSENT
“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study.”

Subject’s signature _______________________________ Date ______________

Investigator’s signature __________________________ Date ______________
Appendix G. Informed Consent for Participant (Child)

We would like to ask you some questions about your last game in the CASL Cup Soccer tournament. The questions are part of a research study. We will ask you questions today, and again about 6 weeks from now.

Taking part in this study is your choice. If you do not want to be interviewed, that's OK. If you decide to go ahead with the interview, you can decide to stop it any time and we will destroy the tape of your interview. If you stop the interview or choose not to take part in this study, your still get a chance to win tickets for the Carolina Courage game for your whole soccer team.

__________ I would like to participate in this study.

__________ I would prefer to not participate in this study.

Participant’s Signature ___________________________ Date __________

Investigator's signature ___________________________ Date __________
Appendix H. Sample Narratives

1. High Story Grammar Score

“Well, it was the first half, it was zero-zero. Then, we got in the second half a girl scored from the very corner and it was 1 – zip. And then at the end of the game it was still 1-zip, and so we thought “well we’re going to go on” because we beat that team. But then the coach went to check it out and he said that the other team that we beat was going to go. Because each team had two wins, and then depending on how many goals were scored on each team…we had three goals scored on us and the other team had three goals scored on them. But the team we beat only had two goals scored on them so they got to go. We thought it was going to be how many goals we scored, but they did the opposite. It was a team we played, we had some guest players, and we played this team, and some of our team were really scared because the last time we played them it was like 6 – 1 and we thought they’re probably going to come back in the second half because that’s what happened last time. And so our team really started to play hard and we got the goal and then we started putting in different players and strong positions and then we held one to zip.”

2. Low Story Grammar Score

“They made us do juggling and they put us on different fields and watched us play and they made us pass and trap and dribble and shoot…um…think that’s it.”