THE EFFECT OF A NARRATIVE INTERVENTION ON PRESCHOOLERS’ STORY RETELLING AND PERSONAL STORY GENERATION SKILLS

by

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ABSTRACT

The Effect of a Narrative Intervention on Preschoolers’
Story Retelling and Personal Story Generation Skills

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Narration, or storytelling, is an important aspect of language. Narrative skills have practical and social importance; for example, children who tell good stories receive attention and approval from their peers. When children accurately recount events surrounding an injury or dispute, vital information is passed to parents and teachers. Additionally, early childhood narrative skills are moderately correlated with reading comprehension in primary grades. Because narration is socially and academically valued, language interventionists often address it. The research literature on narrative intervention has most often included school-aged participants and those with language or learning difficulties. Only a small number of studies have investigated narrative intervention with preschoolers, and the supporting evidence is suggestive rather than conclusive. Outcomes frequently targeted include narrative story grammar (e.g., character, problem, action, consequence) and general language outcomes (e.g., length of story, mean length of communication unit, and total number of words). Results have been
generally positive; however, the methodological quality of studies is poor. Therefore, few firm conclusions can be drawn regarding the efficacy of narrative interventions. Because of its potential and popularity, the effect of narrative intervention on a range of populations needs to be examined systematically through high quality research.

This study evaluated the effects of a narrative intervention on story retelling and story generation using a multiple baseline design with five target participants. We delivered narrative intervention in a small group arrangement. Materials, activities, and instructor assistance were adjusted systematically within session to facilitate increasingly independent practice of story retells and personal story generations. Results suggest that narrative intervention improved participants’ narrative retell and personal generation performance based on Index of Narrative Complexity (INC) scores. All five target participants made substantial gains in narrative retelling, demonstrated improved pre-intervention to post-intervention INC scores for personal generations, and these improvements maintained when assessed following a 2-week break. In addition, we documented growth in general language measures such as number of communication units, mean length of utterance, number of different words, and total number of words.
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Trina D. Spencer
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CHAPTER I

INTRODUCTION

Importance of Narratives

Children reared in poverty tend to demonstrate weaker language abilities compared to their middle-class counterparts (Hart & Risley, 1995; Hoff, 2006). Language competency is important for almost every aspect of a child’s life including positive peer relations, effective communication, and adequate learning in school. Children with poor language skills are at-risk for developing social and behavioral problems (Botting & Conti-Ramsden, 2000) and reading difficulties (Dickinson & Snow, 1986; Snow, Burns, & Griffin, 1998). For example, in a large study conducted in 17 high-poverty schools, investigators found that language competence was perfectly correlated with reading ability at the classroom level and highly correlated (.70) at the student level (Mehta, Foorman, Branum-Martin, & Taylor, 2005). It is not necessary to wait until children experience substantial academic problems to intervene (Dickinson & McCabe, 2001). Dickinson, McCabe, and Essex (2006) described the preschool years as the window of language opportunity and suggested that systematic language instruction in preschool can help prevent later academic difficulties.

Early narrative abilities predict later academic performance. Bishop and Edmondson (1987) investigated which of several language measures at age 4 predicted persistent language impairment and school success at age 5½. While mean length of utterance (MLU; .67), vocabulary (.57), verbal comprehension (.53), information (.61), grammar (.64), and phonology (.51) all showed fairly strong correlations, the ability to
tell a simple story while looking at pictures was identified as the strongest predictor (.76). Researchers have identified features of children's narratives such as vocabulary diversity, event content, perspective shift, and mental state reference that significantly correlate (.33-.50) with math scores two years later (O’Neill, Pearce, & Prick, 2004). In a longitudinal study, Feagans and Appelbaum (1986) concluded that children with good narrative skills relative to syntax and semantic skills experienced fewer academic problems. Fazio, Naremore, and Connell (1996) examined a number of language skills in Kindergarten as potential predictors of need for academic remediation in second grade. Oral vocabulary was predictive of later language impairment (.53) and story-retelling was the single best predictor of academic remediation in the second grade (.40). Vocabulary, grammar, rote-memory, and morpheme-learning did not predict (.00-.20) later academic difficulties.

Research has identified specific associations between narrative skills and reading comprehension. In one study, kindergarten narrative production significantly correlated with fourth grade (.47) and seventh grade (.45) reading comprehension measures (Dickinson & McCabe, 2001). Catts, Fey, Tomblin, and Zhang (2002) found moderate correlations between narrative abilities and reading comprehension in second (.31) and fourth grade (.41). Likewise, Griffin, Hemphill, Camp, and Wolf (2004) found moderate correlations between specific aspects of narration at age five and reading comprehension at age eight. Those aspects that correlated the best include the amount of descriptive information included in the narrative (.48), the use of adjectives, intensifiers, and delimiters (.49), and use of internal state words such as thirsty or thought (.57).
Besides predicting future reading comprehension, narrative skills have direct practical and social importance. Most teachers and parents encourage preschool children to talk about events that occurred earlier in the day or even in the more distant past. In the event of an injury, the need for a complete and comprehensible story is crucial. In social situations, good storytellers are well liked and have more opportunities to practice language than those who do not tell stories (McCabe & Marshall, 2006). Children with delayed language skills, in general, have decreased opportunities to develop social competence (Hart, Fujiki, Brinton, & Hart, 2004), and enhancing their narration skills may facilitate positive peer relationships (McCabe & Marshall, 2006). Through narration, children obtain more attention and approval from friends, and parents and teachers can receive coherent information regarding critical events.

Assessment of Narrative Skills

Narration has been defined as relating causally related events or an experience in temporal order (Hughes, McGillivray, & Schmidek, 1997; Peterson, 1990). The definition appears simple enough; however, the construct narration involves a number of different dimensions including the way in which a story is elicited, component skills, and genre types. In some cases, narration necessitates an additional skill of story comprehension. For example, common measures of narrative abilities are scored from transcribed story retells, which require that the child listens to a story (or watches a movie) prior to recounting the same story. Retells reflect both listening comprehension skills and story production skills (Boudreau, 2008; Wagner, Sahlen, & Nettlbladt, 1999). A different type of narrative elicitation requires the child to generate an original story. A
generated narrative does not include the story comprehension component—instead it taxes children’s higher-level cognitive abilities. Without a model, children must use existing knowledge of story structure and generative language abilities (Merritt & Liles, 1989).

There has been considerable discussion about which elicitation techniques are best used with preschoolers. Narrative structure tends to be stable across both retell and generation tasks (Merritt & Liles, 1987, 1989). Nonetheless, story-retelling and story generations involve different demands. Without an immediate story model or structure to follow, story generations are considered more difficult to produce (Kaderavek & Sulzby, 2000; Merritt & Liles, 1989). Generations allow the child to produce more structural and content variation than retells and more closely represent children’s spontaneous language. While retells are typically limited to fictional stories, generations can be used with all types of story genre (e.g., scripts, personal, and fictional; Liles, 1993). Story retells are often preferred for preschoolers due to several methodological advantages (Boudreau, 2008). By using a retell elicitation technique children tend to produce longer narratives which allows for a more comprehensive assessment (Kaderavek & Sulzby, 2000; McCabe & Rollins, 1994; Merritt & Liles, 1989). Because a model is used prior to the retell component, scoring of retells is substantially easier and more reliable (Merritt & Liles, 1989). As we mentioned earlier, narrative retells unavoidable include story comprehension (Merritt & Liles, 1989; Wagner et al., 1999), which several researchers identify as a critical preschool language skill (Skarakis-Doyle & Dempsey, 2008; Skarakis-Doyle, Dempsey, & Lee, 2008). Thus, retells reflect a very broad set of
component language skills. Research on the use of retell and generation elicitation techniques suggests that both are useful depending on the needs of the clinician and child.

Different types of story genres add to the complexity of the narration construct. Hudson and Shapiro (1991) outlined three major genre types. First, scripts are narratives that describe what usually happens in routine events. This type of narrative requires the child to draw from experience, but represents a collection of experiences rather than recounting one salient event. Typically, scripts are elicited using a question such as “What happens on Halloween?” Personal narratives describe a single event the narrator has experienced or observed. As distinct from scripts, personal narratives include a series of structural features (e.g., abstract, orientation, complicating action, evaluation, resolution, and summary) to indicate a high point or plot to the story (Hudson & Shapiro, 1991; Hughes, McGillivray, & Schmedek, 1997; Labov, 1972). Typically, children initiate personal narratives during spontaneous conversation. Because the child draws from their own experience and it is unlikely the examiner has shared those experiences, personal narratives cannot be elicited through retell procedures (Hughes et al., 1997). The examiner simply does not know the child’s experiences to model a story for them to repeat. However, one elicitation technique comes close and mimics natural conversation. While playing or drawing with a child, the examiner tells about a personal event and asks, “Has something like that ever happened to you?” (McCabe & Rollins, 1994).

Fictional narratives, the third genre, have many structural features in common with personal narratives (Hudson & Shapiro, 1991; Paul, 2007). Like personal narratives, the generally accepted story structure, or story grammar, includes a formal beginning, an initiating event, a resolution of the problem, and a formal ending (Hudson & Shapiro,
1991; Hughes et al., 1997; Stein & Glenn, 1979). Fictional stories include fantasy and fairytales as well as stories that are more realistic in terms of characters (e.g., themselves or someone like them) and events that could really happen (e.g., throwing a surprise party), but have not.

Although fictional narratives have received substantially more research attention, personal narratives may also be important for preschoolers (Boudreau, 2008; Johnston, 2008; Hughes et al., 1997; McCabe & Rollins, 1994; Preece, 1987). Personal narratives are more common in children’s speech and they may be more functionally important for promoting generalized use of language. Preece (1987) extensively analyzed spontaneous narratives of young children and found that 70% of the stories fell into the personal experience genre. Only rarely did young children produce fictional stories. Johnston (2008) recommended targeting personal narratives because they can help children connect socially, which in turn, provides more opportunities to practice language skills. Given that personal narratives are more common and more useful for young children, improving fictional narratives may not be the most direct route to functional language. Unfortunately, personal narratives do not lend themselves to retell elicitation, making them methodologically difficult for both instruction and assessment. This is likely the reason for an abundance of studies addressing fictional narratives – they are easier to elicit through story retell procedures.

A number of researchers have proposed organizational schemes for evaluating narratives (Applebee, 1978; Labov, 1972; Peterson & McCabe, 1983; Stein & Glenn, 1979). One of the most widely used in research and practice is the concept of story grammar (Stein & Glenn, 1979). Story grammar includes the story’s main ideas and vital
components (Hughes et al., 1997; Paul, 2007). Basic stories, or episodes, include an initiating event (i.e., problem), an attempt or action toward a solution, and a consequence (Hughes et al., 1997; Paul, 2007; Peterson & McCabe, 1983). Additional story grammar elements – character, setting, internal response, plan, complication, and resolution – add complexity and sophistication to the episode. Episodic levels can be assigned to stories based on the presence and clarity of certain story grammar components and whether they are temporally and/or causally related – the higher the score the more complex the episode (Hayward & Schneider, 2000; Hughes et al., 1997). In a large-scale descriptive study of children’s narrative abilities, Peterson and McCabe reported normative information regarding episodes and story grammar. They suggested it is reasonable to expect 5-year-old children to produce complete episodes with an initiating event, an action, and a consequence. Story grammar components such as character, setting, internal response, plan, complication, and resolution come later in a developmental sequence (Hughes et al., 1997).

Several other narrative structures supplement the main story grammar components and enhance cohesion. For instance, many stories have an opening and an ending (e.g., “Once upon a time…” and “The end.”). Petersen, Gillam, and Gillam (2008) called these formulaic markers. Variations involve abstracts (e.g., “I fell and broke my leg once.”) that help the listener know what the story is about or codas (e.g., “That was a sad day.”) that summarize the importance of the story (Applebee, 1978; Hudson & Shapiro, 1991). Dialogue is another feature of narratives that increases the level of linguistic sophistication (Petersen et al., 2008). Peterson and McCabe (1983) identified relations between narrative elements as the components that link main story grammar
components together in an organized manner. Examples include causal (e.g., “He was sad because he hurt his hand.”) and temporal (e.g., “He got hurt. Then he went to the doctor.”) linguistic markers (Hughes et al., 1997; Justice et al., 2006).

In addition to narrative structure, narrative language samples can be analyzed based on a variety of features not unique to narratives. Researchers frequently assess children’s narrative productivity by counting the number of communication units (NCU; a communication unit is a main clause and its subordinate clauses), total number of words (TNW), number of different words (NDW), and mean length of utterance (MLU; Klee-Aker, Flahive, & Flemming, 1997; Justice et al., 2006; McGregor, 2000). Likewise, morphosyntax (rules for word and sentence structure), vocabulary, story comprehension, and speech production can be evaluated from narratives (Hughes et al., 1997).

**Narrative Intervention**

Interventions addressing narrative skills vary considerably in terms of procedures, materials, and arrangements. Some of the common activities in interventions labeled “narrative" include the use of books, cue cards, pictures or drawings, listening to stories, telling stories, retelling stories, writing stories, and role-playing. Some level of scaffolding, differential focus on specific targets, and adjusting materials and content are also typical teaching strategies. However, there is no agreement about defining features of narrative intervention. In their systematic review of narrative intervention studies with language-impaired students, Petersen (in press) defined narrative intervention as an intervention in which participants produce at least two oral narratives. For the purpose of the current study, we define narrative intervention as the production of at least two oral
narratives of any genre. To meet this definition, oral narration must be an essential part of
the intervention and not simply used as the means for assessing the dependent variable.

Authors of language textbooks often recommended narrative intervention
strategies (e.g., Ukrainetz, 2006; Paul, 2007). As a result, speech-language pathologists
commonly include narrative intervention in their clinical practice (Hayward & Schneider,
2000). However, the effects of narrative intervention have not been sufficiently
documented. Petersen (in press) recently reported on the literature of narrative
intervention studies targeting children with language or learning disabilities. Only nine
narrative intervention research studies met their selection criteria (i.e., at least two
narratives produced as part of the independent variable and children with language or
learning difficulties as participants). They appraised each study for design quality and
threats to internal validity. Where possible, they calculated effect sizes. Petersen reported
a number of interesting findings: (a) aside from the defining feature of repeated narration,
there was minimal overlap in procedures, materials, and arrangements, (b) results
consistently indicated moderate to large effect sizes for improved story grammar, (c)
relational and supplemental narrative elements (e.g., causal, temporal, and formulaic
markers) often improved without being targeted directly, (d) generalization and
maintenance data were seldom reported and, when reported, results were mixed, and (e)
the majority of studies were considered low quality and represented poor demonstrations
of internal validity. Petersen concluded that, despite the need for higher quality studies
that more convincingly demonstrate a causal relation, narrative intervention may be a
promising approach to improve narrative skills of children with language or learning
impairments.
Building on Petersen’s (in press) work, we examine narrative intervention with a different population. Rather than investigating the effect of narrative intervention on school-aged children with language impairments, we are interested in the effect of narrative intervention in a younger, non-disabled population—preschoolers who are at-risk for reading failure. Given that narrative language correlates well with reading comprehension, addressing narrative language early may be more economical than reading interventions in elementary school and lead to quick remediation before reading instruction begins. Therefore, the purpose of this study is to investigate the effect of a narrative intervention on at-risk preschoolers’ narrative language performance. We begin by reviewing the relevant intervention research and carefully examining studies for quality methodological features, important aspects of the independent variable, and suitable dependent variables. Results of the literature review, to the extent possible, inform the methods and procedures of this investigation.
CHAPTER II
LITERATURE REVIEW

Review of Preschool Narrative Intervention Research

Many young children at-risk for language and reading problems qualify for and attend preschool programs designed to address these challenges (e.g., Head Start). Dickinson and others (2006) strongly suggest that systematic language instruction in preschools can help avert more intense language and reading intervention during primary grades. Language instruction, such as narrative intervention, can begin before children display significant language impairment. A small number of researchers have investigated the impact of narrative intervention on preschoolers' language abilities. To date, seven studies have included preschool children as participants and implemented narrative intervention as defined above. Critical elements of narrative intervention studies include (a) intervention delivery arrangements (e.g., individual or group and number of sessions), (b) intervention activities and materials, (c) the nature of dependent measures, (d) techniques for obtaining dependent measures, and (e) the extent to which researchers demonstrated a causal relation between the intervention and changes in the measures.

One of the first investigations of narrative intervention with preschoolers was a comparison between two approaches (i.e., phonological and whole language) to therapy (Hoffman, Norris, & Monjure, 1990). Two 4-year-old children with phonological delays participated; one child received the phonological approach and one child received the whole language approach. Researchers assessed both participants on phonological and language performance measures. Individual therapy sessions were held three times a
week for 50 minutes over a 6-week period. In the whole language approach, the participant practiced telling and retelling stories while receiving guidance from the therapist. Phonological measures (e.g., number of correctly produced target sounds, number of consonant clusters, and number of correctly produced consonant clusters) were derived from pre- and posttest transcripts of single words elicited through the screening subtest of Templin-Darley Tests of Articulation. Children also retold the story of *The Three Bears* at pre- and post-test points, and retell performances were analyzed for general language measures (e.g., simple sentences, complex sentences, verb tense errors, and pronoun errors). Results indicated that both children improved in phonological and language measures, but the child who practiced telling and retelling stories displayed greater improvements in language than the child who received the phonological approach to therapy. Unfortunately, researchers did not eliminate severe threats to internal validity. A pre-, post-test design without a control group and the inclusion of only two participants precludes strong conclusions.

Tyler and Sandoval (1994) conducted a study comparing language and speech therapies implemented separately and combined. Six preschoolers with moderate to severe delays in language and phonological process deficits served as participants. They assigned pairs of children to one of three treatment groups (e.g., speech, language, and combination), noting that pairs differed in severity of disability with those in the language group being the most severely affected and children in the combination group as the least affected. Individual sessions lasted 45-minutes in a clinic and occurred two to three times a week for 12 weeks. The language intervention involved the participant retelling stories with the therapist facilitating by using language expansion and recasting techniques,
whereas the speech intervention involved direct and repeated production of target sounds. Story retells (using pictures of a book), elicited twice prior to intervention and twice during intervention, were analyzed for mean length utterance (MLU). Pre- and posttest speech measures were obtained using spontaneous language samples during play. The authors found that the pair of participants who received the speech intervention showed moderate improvements in language and speech, participants receiving the combination intervention made substantial improvements in both areas, and students receiving the language intervention displayed small improvements in language and negligible improvements in speech. Given that the groups demonstrated different levels of severity of delays prior to intervention and outcomes for each group mimicked initial levels, little can be concluded from these results.

Using visual cues for story components and stick drawings, McKeough and Sanderson (1996) taught storytelling to five 4-year-old typically developing children. While the instructional arrangement is unknown, intervention sessions occurred three to four times a week (a total of 19 sessions) for 20-30 minutes. The storytelling intervention involved a sequence of steps in which participants practiced telling stories with greater complexity. While children told stories with the assistance of visual cues, an adult drew corresponding stick drawings. To elicit pre- and post-test story generation samples, participants were asked to “tell a story about someone who had a problem that they wanted to solve—to make it all better” (p. 162). Although the authors mention eliciting stories, they did not report measures from them. In addition, they described their findings qualitatively. Again, little can be concluded regarding the effects of the intervention.
Although using parents as intervention agents is not unusual for young children, only one narrative intervention study included a home-based, mother-child storytelling component (Peterson, Jesso, & McCabe, 1999). Twenty economically disadvantaged children (mean age 3 years, 7 months) participated with their mothers. Families were randomly assigned to either intervention or control groups. In the intervention condition, mothers were trained to spend more time in narrative conversation, ask ‘wh’ questions, and use elaboration and recasting techniques to encourage their children to tell longer stories. In addition, a member of the research team visited or called families every month to provide support or retrain as needed. Dependent variables included both general language skills (i.e., vocabulary using the Peabody Picture Vocabulary Test) and narrative-related skills. Using a natural conversation context (McCabe & Rollins, 1994; Peterson & McCabe, 1983), an examiner who was blind to group assignment, elicited personal experience narratives from each participant on three occasions (i.e., prior to intervention, after a 12 month intervention phase, and at 1 year follow-up). They analyzed each narrative for length and amount of context-specific information. In addition, each participant was administered the Peabody Picture Vocabulary Test (PPVT) pre- and post-intervention. Significant differences between intervention and control groups were found on the PPVT post-intervention and for context-specific information at follow-up ($d = .8$). Interestingly, there was no difference in narrative skills immediately following the 12 month intervention ($d = -.6$). The use of random assignment and blind assessment increases confidence in their findings—namely, that the parent-delivered narrative intervention had long term effects on the quality of children’s narratives. The
authors speculated that because it took some time for mothers to hone their own narrative and encouragement skills, the effects on the children’s narratives were delayed.

McGregor (2000) investigated the effect of a clinician-prompted, peer-mediated narrative intervention on story retelling. Participants were African American English speaking children attending a Head Start preschool. Two students who scored near the ceiling on initial narrative assessments served as tutors and two students identified by the teacher as poor communicators served as tutees. During intervention sessions, tutors modeled retelling a story using the pictures while the clinician provided prompts and asked questions. The authors developed the stories to reflect common event themes such as losing a shoe or catching a train. After the tutor modeled the story, the tutees retold the story with the clinician’s assistance. The clinician never narrated a complete story but simply assisted in the process. The study included aspects of single subject and group research designs. In an AB design, the same stories accompanied by pictures were used in training and in retell assessments. Based on the narrative retells, several general language measures (e.g., number of total words, number of different words, and mean length of utterances) and narrative-related measures (e.g., number of story grammar elements) were analyzed during baseline (three probes), intervention (seven probes), and maintenance (one probe) phases. Pre-intervention and post-intervention retell assessments were conducted using the a familiar story book, *Corduroy*, and were analyzed for the number of story grammar elements used. Ten children served as a control group, while tutors and tutees (n = 4) made up the experimental group. The group data (displayed graphically) reveal larger pre/post-intervention gains for the experimental group than the control group. Although the groups were small, the pre- and post-
intervention assessments add strength by comparing the experimental students to a control group. The AB design does not control for maturation and the stories used for assessment were practiced during intervention. Thus, our confidence that the intervention alone was responsible for differences in outcomes cannot be strong.

In a study with 13 preschool and kindergarten children with language impairments, Hayward and Schneider (2000) investigated a narrative intervention with an emphasis on story grammar. All children attended a language-based, early childhood classroom located in a rehabilitation hospital, and participated in small intervention groups (2-3 children per group) twice a week for 20 minutes. While narratives were central to the ongoing classroom curriculum, the instructor did not directly target story grammar elements outside of the intervention. The intervention included repeated exposure to stories, cloze activities, vocabulary building, comprehension monitoring, retelling and role-playing stories. Story grammar activities included using cue cards to represent each story grammar element, sorting and sequencing elements, identifying missing elements, and reformulating scrambled stories. A single subject design using only A and B conditions was implemented, with half the group receiving two baseline probes and half the group receiving four baseline probes. Examiners elicited retells at pretesting (also called baseline) using two stories. The same two stories were employed as weekly probe retell assessments during the intervention phase. Two novel stories served as stimuli during posttesting. Two dependent measures were recorded for each probe (i.e., pretesting, weekly probes, and posttesting): a) number of story grammar units and b) episode level (0-5). Group pretest to posttest gains reflect a statistically significant difference for story grammar ($d = 1.0$) and episode level ($d = 1.96$). Based on the single
subject graphical displays, 12 out of 13 participants showed improvements with about
two-thirds demonstrating substantial gains (i.e., high percent of non-overlapping data
points) after only eight intervention sessions. Despite impressive gains, the AB design
with two staggered baselines and the use of familiar stories for assessment does not
sufficiently rule out alternative explanations for the effect. Similarly, pre/post-test design
without a control group is a relatively weak demonstration of a causal relation.

Five preschool children with no or mild language delays participated in a
storytelling program held on a university campus (Speaker, Taylor, & Kamen, 2004). The
authors did not describe details of the 4-week program but mentioned that classroom
exposure to books and retelling stories were major components of the intervention. They
analyzed outcomes related to general language including syntax, grammar, semantics,
and pragmatics instead of narrative-related measures (i.e., story grammar and episodes).
Further, they gathered spontaneous language samples by asking children to look at a
picture and talk about what they saw rather than generate a story about the picture. Thus,
all of their measures reflect significant degree of generalization. Their rationale was that
narrative intervention can affect general quality of expressive language beyond the
specific language forms used in story telling contexts. Unfortunately, only descriptive
data were reported for differences from pretest to posttest measures and no attempt was
made to demonstrate a causal relation.

**Summary of Preschool Narrative Intervention Research**

Seven studies of narrative intervention have included preschool-aged participants.
Four of these studies included participants with phonological or language impairments
(total N=26), two included disadvantaged or at-risk participants (total N=24), and one was implemented with typically developing children (N=5). Taken together, the results suggest that narrative intervention procedures may improve narration and general language measures. However, this body of literature is still evolving and there are not enough well-controlled efficacy studies to support a definitive outcome.

Across studies, there was great variability in the arrangement of intervention sessions as well as in the number and length of sessions. Three of the studies, a clinician or parent delivered the intervention to children individually, two did not describe the intervention arrangement, and one study incorporated a peer-mediated model. Only one study (Hayward & Schneider, 2000) employed a group intervention arrangement (2-3 children per group). Interestingly, Hayward and Schneider reported large effects after only eight 20-minute sessions. This arrangement may be important because many at-risk or disadvantaged children would be unlikely to receive narrative intervention individually without documented disabilities and mandated provisions for language services. The number of total intervention sessions ranged from 8 to 24 and session duration was between 20 and 50 minutes. Because most studies relied on pre/post-intervention data, it is impossible to determine the pattern of growth that resulted in final outcomes. For example, most of the growth could have occurred in early sessions and later sessions could have been less productive. In general, very few authors described the treatment with sufficient detail. As a result, these studies provide little guidance in terms of intervention features, activities, or materials. With the exception of Peterson et al. (1999), who elicited personal experience narratives, fictional narratives were targeted.

McGregor’s (2000) intervention was based on books about typical preschoolers’
experiences. While still fictional, these themes bring the stories closer to a personal experience genre. Aside from the one common feature of repeated narration, two intervention procedures were common to more than one study. First, multiple sets of researchers used some form of visual cues (e.g., wordless picture books, story grammar cue cards, or single pictures) to support narration. Second, adults provided assistance (e.g., elaborations, questions, modeling) to facilitate participant narration. It is possible that the use of visual supports and adult assistance also contribute to the impact of narrative intervention. At this time, however, there is little information about the specific components responsible for observed improvements.

Five sets of researchers gathered language samples using a narrative context (i.e., story retells or generations), but only two of them scored narrations for narrative-related elements (i.e., story grammar or episode level). The rest of the studies assessed general language outcomes (e.g., mean length of utterance, number of words, syntax, and morphology). The majority of the studies reported positive outcomes for general language measures as well as narrative-related measures.

Conclusions and Purpose

Considered together with Petersen’s (in press) findings regarding use of narrative intervention with children with language impairments (which included all age levels), the current review of the preschool narrative intervention literature reveals that this area of research is still in the early stages. No study satisfactorily eliminated alternate explanations for the outcome. Features that stand out include using the same stories in assessment and training, lack of control group for group studies, and basic single subject
designs without staggered baselines. Several studies lacked adequate descriptions of the arrangement, procedures, and treatment precluding replication, systematic development of interventions, or conclusions about variables that were responsible for outcomes. Even though this area is still evolving, outcomes appear to be favorable. In order to move the literature forward by investigating the efficacy of narrative intervention, additional studies with stronger research methods are necessary. In the study described below, we included a number of features that strengthen the design. For instance, we staggered baselines, outlined prescriptive steps for intervention a priori, used different stories for assessment and training, assessed narrative performance after a maintenance phase, evaluated treatment fidelity and interscorer agreement, assessed social validity, and scrutinized our intervention and outcomes to answer questions regarding proper dose.

We employed the Index of Narrative Complexity (INC; Petersen et al., 2008) for evaluating the dependent variables in our study. The INC is a scoring system that is neutral with respect to theory and includes structural categories considered by many narrative researchers to be important. Because the current study was not intended to be conceptual in nature and for simplicity when discussing a long list of structural components, we used the INC's category labels and created a set of convenient (but not necessarily empirically supported) classification terms. Specifically, we grouped narrative elements into three classes (main story grammar, relational elements, and supplemental elements). We defined five main story grammar elements: character, initiating event (also called problem), internal response, action, and consequence. Although the INC includes a category to score setting, we did not include it as a main story grammar element nor did we teach it directly. The inclusion of initiating event,
action, and consequence constitutes a complete episode for this age group (Peterson & McCabe, 1983), but while field testing our procedures, we observed 4- and 5-year-old children to include the character’s name and how they felt. Relational elements include causal markers (e.g., because) and temporal markers (e.g., then). Because these features link or relate different story grammar components together, we call these features relational elements (cf. Peterson & McCabe, 1983). We categorize dialogue and formulaic markers as supplemental elements because they enhance the sophistication of the narrative but are not essential.

A number of additional language features can be measured in narratives, but are not unique to narrative language (e.g., mean length utterance, vocabulary, morphosyntax). While many aspects of language may be considered general language outcomes, we use this term to refer to the following: number of communication units (NCU), mean length of utterance (MLU), number of different words (NDW), and total number of words (TNW).

In the development of our independent variable, we gleaned some intervention components from previous research and combined them with our practical knowledge. For example, we included active narration as the primary intervention activity and supplemented it using pictures, story grammar icons, and adult assistance as in Hayward and Schneider (2000) and McKeough and Sanderson (1996). We followed McGregor’s (2000) example and developed our own assessment stories that reflect young children’s experiences. Finally, like Peterson and colleagues (1999), we directly taught personal experience narration. Personal narration skills are most appropriate and immediately useful for young children. Importantly, we consider improved personal narration to be the
The ultimate target of our study, even though for methodological reasons, retell narration is the primary dependent variable.

The purpose of this research was to investigate the effect of a group delivered, narrative intervention on at-risk preschoolers’ story retell and personal experience generation skills.

The primary research question was: To what extent does narrative intervention improve INC scores of preschoolers’ story retells?

Secondary research questions relating to narrative retells are as follows:

1. To what extent does preschoolers’ improved retell INC scores maintain following a period of two weeks with no intervention?

2. To what extent does narrative intervention influence general language outcomes of retell narratives?

3. How many narrative intervention sessions are necessary for preschoolers to produce complete episodes and include the five main story grammar elements in their retell narratives?

4. To what extent does narrative intervention, in which only the five main story grammar elements are prompted, effect preschoolers’ inclusion of other elements in their retell narratives?

Secondary research questions relating to personal experience generations are as follows:

5. To what extent does narrative intervention improve INC scores of preschoolers’ personal experience narratives?
(6) To what extent does preschoolers’ improved personal experience INC scores maintain following a period of two weeks with no intervention?

(7) To what extent does narrative intervention influence general language outcomes of personal experience narratives?

The last secondary research question addresses Head Start teachers’ perceptions of the intervention and outcomes it produced.

(8) To what extent are the narrative intervention procedures and outcomes socially valid?
CHAPTER III

METHOD

Participants

Nineteen preschool children enrolled in one classroom at Logan Head Start participated in the narrative intervention. However, we selected only seven students to be monitored throughout the study. The selection process occurred in several steps. First, the classroom teacher completed a portion of the selection worksheet (see Appendix A) regarding students’ compliance during instruction, motivation, absences, disability, and English language background. The teacher identified eleven students as compliant, motivated, and rarely absent. One of the students had a documented disability and one was an English Language Learner. In the second step, we compared students’ performance on the Renfrew Bus Story (Cowley & Glasgow, 1997) and a pre-intervention personal narrative to pre-established selection criteria, which were a) below average Bus Story scores (standard score of < 90) and three or less main story grammar components used in personal narrative. To capture students truly at-risk, we wanted to include children who consistently performed below average on narrative language tasks. We screened out students who consistently performed well on narrative tasks and who appeared to have age-appropriate language skills. The primary investigator administered the Renfrew Bus Story to the eleven compliant, motivated, and rarely absent students. The Bus Story is a norm-referenced screener of preschoolers’ narrative abilities. Administration involves showing the child a series of 12 pictures while the examiner tells a story about a runaway bus. Then the student looks at the pictures while retelling the
story. In addition to using participants’ standard scores on the Bus Story to make selection decisions, we also considered their ability to generate a personal experience story during a natural conversation. An examiner elicited a personal narrative from each of the eleven students (see personal experience pre/post generation in Dependent Variable section). Lastly, we asked each of the 11 students to look at a set of pictures of people and label their perceived emotion. We tested for the ability to expressively label happy, sad, and mad.

One student, the one with a disability, was not able to identify the emotions featured in the pictures. As a result, we eliminated her from the pool of participants. We also eliminated three students who scored within the average range on the Bus Story and included more than four story grammar components in their personal narrative—they appeared to already be proficient in basic narrative skills. Of the remaining seven children, five scored at least one standard deviation below the mean on the Bus Story and included less than four story grammar components in their personal experience narratives. We selected these five children as target participants. The remaining two children included four or less of the main story grammar elements in their personal narratives, but earned average Bus Story scores. Although these students would have been eliminated by the original selection criteria (i.e., below average Bus Story scores), we included them to examine any differences in effect related to participants’ entry language skills. Table 1 shows the results of the assessments used to select participants.

Demographic information for each participant is displayed in Table 2. Six of the seven target participants are female. At the beginning of the study, participants mean age was 4 years, 7 months (range 4:3-5:1). Three children are white, three are Latino,
Table 1

Results of Assessments Used for Selection

<table>
<thead>
<tr>
<th>Participant</th>
<th>Bus Story Standard Score</th>
<th>Number of Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jenny</td>
<td>79</td>
<td>2</td>
</tr>
<tr>
<td>Melanie</td>
<td>79</td>
<td>1</td>
</tr>
<tr>
<td>Nicky</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Ellie</td>
<td>76</td>
<td>2</td>
</tr>
<tr>
<td>Adam</td>
<td>72</td>
<td>1</td>
</tr>
<tr>
<td>Supplemental Participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lola</td>
<td>91</td>
<td>0</td>
</tr>
<tr>
<td>Aimee</td>
<td>100</td>
<td>4</td>
</tr>
</tbody>
</table>

Note. Pseudonyms used to protect the identity of participants.

and one participant is American Indian. Five of the children speak English as a first language, one child (Ellie) is bilingual Spanish and English, and one child (Adam) is a Hispanic, English Language Learner. To estimate their level of Spanish and English proficiency prior to the study, interviews were conducted with Ellie and Adam's mothers. Reportedly, Ellie always understands what is said in Spanish and English. She uses five or more words and constructs well-formed sentences in both languages. However, her grammar and intelligibility are better in Spanish. Ellie speaks primarily Spanish with her parents, but uses both languages when speaking to her older siblings. In addition, Ellie’s mother reported she translates English television shows into Spanish for the family.
Table 2

*Participant Demographics*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Age</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jenny</td>
<td>4:6</td>
<td>Female</td>
<td>White</td>
<td>English</td>
</tr>
<tr>
<td>Melanie</td>
<td>4:8</td>
<td>Female</td>
<td>White</td>
<td>English</td>
</tr>
<tr>
<td>Nicky</td>
<td>4:3</td>
<td>Female</td>
<td>American Indian</td>
<td>English</td>
</tr>
<tr>
<td>Ellie</td>
<td>5:1</td>
<td>Female</td>
<td>Latino</td>
<td>Bilingual Spanish and English</td>
</tr>
<tr>
<td>Adam</td>
<td>4:7</td>
<td>Male</td>
<td>Latino</td>
<td>Spanish - English Language Learner</td>
</tr>
<tr>
<td>Lola</td>
<td>4:9</td>
<td>Female</td>
<td>Latino</td>
<td>English</td>
</tr>
<tr>
<td>Aimee</td>
<td>4:6</td>
<td>Female</td>
<td>White</td>
<td>English</td>
</tr>
</tbody>
</table>

Based on his mother’s answers, Adam understands what is said in Spanish and English, but does not use English as proficiently as Spanish. He constructs sentences of two to three words in English and sentences of five or more words in Spanish.

Adam rarely forms English sentences well, is often unintelligible, and demonstrates a limited English vocabulary. He speaks only Spanish to his parents, but uses both languages when speaking to his older siblings.

**Arrangement and Setting**

With assistance from the classroom teacher, we divided the 19 students into four groups of four and one group of three students and assigned each group a color. We strategically arranged the groups of four to include at least two appropriate models in
each group. In the pink group, Lola and Aimce (supplemental participants) served as models; otherwise, target participants were grouped with students who demonstrated better language skills prior to intervention. Groups orange and yellow contained two target participants, while the blue group had only one target participant. The group of three (white) did not include target participants, but received the intervention to ensure fairness among students.

Assessment sessions, in which target participants generated personal experience stories or retold stories, took place in one of two locations: (a) the students’ Head Start classroom when the rest of the students were outside or (b) in the hall when the rest of the students were in the classroom. All intervention sessions took place in the hall just outside the Head Start classroom. A table and five chairs were available for three or four students and one instructor.

**Materials**

**Assessment Materials**

The primary investigator and one research assistant wrote 40 short stories to use during assessment. We wrote fictional stories to reflect realistic preschool experiences such as getting hurt, special events, dinner, dealing with a sibling, playing at the park, expecting a visitor, going to the doctor, shopping with a parent, getting dressed, and playing games. In order to level the stories, we developed them using a template. Each story contained the same structural features: (a) Five main story grammar elements (i.e., character, problem, internal response, action and consequence), (b) the main character’s name, (c) a general description of the setting (e.g., outside), (d) two causal markers (e.g.,
because), (e) two temporal markers (e.g., then), (f) one formulaic marker (e.g., One day),
(g) one instance of dialogue (e.g., John said, “Ouch. That hurts.”), (h) one adjective (e.g.,
purple), and (i) one adverb (e.g., quickly). In addition, all of the stories have 67-70 words
and an Index of Narrative Complexity (INC) score of 16 (see Dependent Variable section
for description). This narrative structure aligns with the available information regarding
typical 4- and 5-year-old children’s narrative abilities (see Hughes et al., 1997; McCabe
& Rollins, 1994; Peterson & McCabe, 1983; Peterson, 1990). Table 3 contains narrative
structural components, themes, and sample stories. We printed the 40 assessment stories
in large print on cardstock (5 x 7 inches) and laminated them. Additional assessment
materials included a digital voice recorder, a variety of hand puppets, and marker stamps.

**Intervention Materials**

The primary investigator and a research assistant developed an additional ten
stories to use during intervention. To ensure stories were level with the assessment
stories, we used the template described above to write them. A graphic designer created a
series of five pictures to accompany each intervention story. The five pictures correspond
to the five major story grammar elements (i.e., character, problem, internal response,
action, and consequence; see Figure 1). The pictures are mostly black and white with a
few colored features. We printed each picture on 5 x 7 inch cardstock and laminated
them.

In addition to the pictures, we provided visual support during intervention with
story grammar icons. Story grammar icons are symbols representing each major story
<table>
<thead>
<tr>
<th>Theme</th>
<th>Character</th>
<th>Setting</th>
<th>Problem</th>
<th>Internal Response</th>
<th>Action</th>
<th>Consequence</th>
<th>Causal Marker</th>
<th>Temporal Marker</th>
<th>Supplemental Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Event</td>
<td>Megan</td>
<td>friend’s house</td>
<td>cake without a flower</td>
<td>upset</td>
<td>asked if she could have a piece with a flower</td>
<td>received a piece with a flower</td>
<td>because there was a party; because she wanted a flower</td>
<td>When Megan got a piece of birthday cake; then she gave Megan a piece with a flower</td>
<td>Last week</td>
</tr>
<tr>
<td>Getting hurt</td>
<td>John</td>
<td>down the street</td>
<td>crashed on his bike and hurt his knee</td>
<td>sad</td>
<td>ran home and told his mom</td>
<td>got a band-aid and knee was better</td>
<td>because he wanted to play with his friend; because his knee hurt</td>
<td>then John ran home; After that</td>
<td>One day</td>
</tr>
<tr>
<td>Dinner</td>
<td>Jose</td>
<td>at dinner</td>
<td>pizza has olives on it</td>
<td>mad</td>
<td>Jose asked if he could take them off</td>
<td>took off the olives and ate his pizza</td>
<td>because he didn’t like to; because he didn’t want to eat them</td>
<td>then Jose’s mom said; After he took the olives off</td>
<td>One time</td>
</tr>
<tr>
<td>Sibling</td>
<td>Hannah</td>
<td>downstairs</td>
<td>Hannah’s sister playing with her doll</td>
<td>angry</td>
<td>Hannah asked to play with her and the doll</td>
<td>Hannah and her sister played together</td>
<td>because she wanted to play; because her sister shared</td>
<td>when Hannah went downstairs; before she did</td>
<td>Last night</td>
</tr>
</tbody>
</table>
Figure 1. Sample intervention story pictures corresponding to five story grammar elements.

Figure 2. Story grammar icons from left to right: Character, problem, internal response, action, and consequence.

grammar element (i.e., character, problem, internal response, action, and consequence) printed on 3 x 3 inch cards (see Figure 2). To increase active participation, we developed a number of story games (i.e., story bingo, story cubes, story sticks, and story gestures) for students to play during the intervention. Three of the four games required materials to play. First, story bingo cards are 6 x 11 inch laminated cardstock boards with each story grammar icon in its own square. Materials for the second game, story cubes, include small cardboard cubes (4 x 4 x 4 inches) with an icon on each side. Third, story sticks are small wooden sticks like tongue depressors with icons on one end. Additional intervention materials included a digital voice recorder and marker stamps.
Dependent Variable

Elicitation Procedures

The dependent variable consists of two categories of participant-produced narratives – story retells and personal experience story generations. In addition, we included two types of personal experience stories – personal stories that were probed in each session immediately following the elicitation of the retells, and personal stories that were elicited using a conversation-elicitation technique at pre-intervention, post-intervention, and maintenance assessments. Each of these types of narratives is described below.

Story retells. Story retells served as the primary dependent variable and were elicited daily (Monday through Thursday) prior to intervention sessions. To elicit story retells, an examiner sat across from an individual participant and said, “I’m going to tell you a story. Listen carefully because I’m going to ask you to tell the same story to this puppet. Ready?” The examiner read the participant a story randomly selected (without replacement) from the pool of 40 assessment stories described above. After reading the story, the examiner said, “Now you tell the same story to the puppet. Remember, he’s never heard it before.” As the participant retold the same story, the examiner, pretending to be the puppet, provided only neutral listening and continuing prompts such as “Uh-huh,” “Yeah,” and “Really?” When the participant had finished or paused for more than a few seconds, the examiner asked, “Is that the end?” When the participant confirmed that he or she was finished retelling the story, the examiner began the probed generation elicitation.
**Probed generations.** Immediately after the participant finished retelling a story, the examiner asked, “Has something like that ever happened to you?” The examiner encouraged participants to share if they responded “Yes” to the question, but did not insist if they did not want to share a personal story. This began the elicitation of the first type of personal experience story generation. We call this type of narrative the *probed generation* because we probed participants for a personal story but we could not ensure they would produce one. As a result, our analysis relied on participants’ willingness to share a personal story. As the participant told his or her story, the examiner provided only neutral listening and continuing prompts such as “Uh-huh,” “Yeah,” and “Really?” When the participant had finished or paused for more than a few seconds, the examiner asked, “Is that the end?”

**Pre/post generations.** We employed a conversation-elicitation procedure at pre-intervention, post-intervention, and maintenance assessments to elicit participants’ personal experience generations. The procedure used in the current study was adapted from Petersen and McCabe (1983) and McCabe and Rollins’s (1994) natural conversation technique for eliciting narratives from preschoolers. While engaging the individual participant in play or puzzles, the examiner told a short story. The story was based on a realistic fictional story drawn randomly (without replacement) from the pool of assessment stories, but told in first person. When the examiner’s story was complete, she asked the participant “Has something like that ever happened to you?” As the participant generated his or her story, the examiner made only neutral continuing prompts such as “Uh-huh,” “Yeah,” and “Really?” to demonstrate that she was listening and interested. When the participant had finished or paused for more than a few seconds, the
examiner asked, “Is that the end?” Whether the participant told a story or not, a few
minutes later the examiner told another first-person story. This procedure repeated three
times during the conversation to increase the likelihood that the participant had a story to
share. Occasionally, participants were reluctant to share a story. When that occurred, the
examiner encouraged the participant to think about a story to share by highlighting the
theme of the examiner’s story. For example, the examiner said, “Have you ever gone to
the doctor?” or “Tell me a story about when you got hurt.” Once the examiner had shared
three stories and the participant had three opportunities to generate personal experience
narratives, the examiner thanked the participant for playing and talking and cleaned up
the toys.

**Fidelity of elicitation procedures.** To document accuracy of elicitation
procedures, we employed a system to measure fidelity. Because each digital voice
recorded narrative included what the examiner said, procedural fidelity was easily
assessed at the time of transcription using a simple checklist. The fidelity checklist
included steps for eliciting three types of narratives: (a) daily retell narratives, (b) daily
probed personal experience generations, and (c) pre/post personal experience generations
(see Appendix B). While listening to the recording, a research assistant wrote a plus sign
(+) in the space next to steps implemented correctly and a minus sign (-) in the space next
to steps implemented incorrectly. We calculated the percent of steps completed correctly
for eliciting the daily narratives and for the pre/post generations. Because they were
implemented in the same session and were recorded on the same digital file, we
combined the fidelity results for the two daily measures (retells and probed generations).
We report the pre/post generation fidelity results separately because the procedure differs
from the daily elicitation procedures. A research assistant assessed 38% of the daily
elicitations (across all phases) for procedural fidelity. The mean fidelity score was 98%
with a range of 77-100%. She assessed 25% of the pre-intervention, post-intervention,
and maintenance conversation elicitations for fidelity. The mean fidelity was 96% and a
range of 80-100%.

Measurement

Analysis of narratives involved two established systems of measurement: (1) the
Index of Narrative Complexity (INC; Petersen et al., 2008) to assign a score to each
narrative and (2) the Systematic Analysis of Language Transcripts (SALT; Miller &
Chapman, 2004) to measure general language features. We supplemented these two
scoring systems with a visual inspection of a color-coded grid that visually displayed the
presence and complexity of narrative elements. We refer to this as a grid analysis.

Index of Narrative Complexity (INC). The INC scoring system is a rubric that
is used to rate each structural element or category on a zero to two or three rating scale.
INC developers incorporated elements that most narrative researchers believe are key
features of oral narratives (Gillam & Pearson, 2004; Hughes et al., 1997; Justice et al.,
2006; Paul, 2007; Ukrainetz, 2006) without aligning it with a single theoretical or
conceptual framework (e.g., Labov, 1972; Stein & Glenn, 1979). The original INC
included 13 categories (i.e., characters, setting, initiating events, internal responses, plans,
action/Attempts, complications, consequences, narrator evaluations, formulaic markers,
temporal markers, dialogue, and causal adverbial clauses); however, because the INC was
not intended for scoring young children’s narratives or personal stories, we made a few
minor modifications and clarifications. The most significant modification involved eliminating the *narrator evaluations* category. Appendix C shows the modified INC with adapted material in red. In a preliminary investigation of reliability and validity of the INC, Petersen et al. (2008) found high interscorer agreement (90-96%), test retest correlations with one month between testing (.604-.898), and concurrent criterion validity (.602-.828) with the Test of Narrative Language (TNL; Gillam & Pearson, 2004).

The examiner recorded all participant-produced narratives (retells, probed generations, and pre/post generations) using a digital voice recorder. A research assistant, who was blind to participants’ identification, group assignment, and phase, transcribed them using a word processing program. The same research assistant scored each narrative using the modified INC scoring system and calculated a total INC score (0-28) for each narrative.

The research assistant who conducted the primary scoring of all narratives held a bachelor’s degree in Communication Disorders, but required additional training to use the INC scoring rubric. Training occurred in a series of steps. First, one of the INC developers provided direct training on SALT transcription conventions, narrative structure, and INC ratings. Second, they practiced transcribing and scoring narratives together. We elicited practice narratives during field-testing with preschool students at Cache Valley Learning Center. Third, the research assistant practiced independently and asked the INC developer questions, as necessary. Finally, the research assistant and the INC developer independently scoring narratives until a criterion was met, which was three consecutively scored narratives with at least 92% agreement. We defined agreement
as both scorers rating an element (e.g., character, internal response, causal marker) with the same number of points (0-3)

**Index of Narrative Complexity (INC) scoring agreement.** Due to the complexity and subjectivity of scoring young children’s narratives, we implemented a double checking system before establishing the level of interscorer agreement. The first research assistant listened to each digital recording and transcribed the narrative. She used the modified INC scoring rubric to assign a score of zero, one, two, or three in each of the 12 categories (e.g., character, problem, temporal marker, dialogue). After the initial scoring, the primary investigator read each transcript and reviewed the scoring, but did not rescore the narrative. If random errors or consistent scoring drift were discovered, she returned the narrative for the research assistant to score it again. Once the scoring was final, a second research assistant, who was blind to participants’ identity, group assignment, and phase, independently transcribed and scored a subset of the narratives to document the degree of agreement. For transcription, we calculated word-by-word agreement using the following formula: number of agreements divided by the number of agreements plus disagreements multiplied by 100%. For scoring, there were 12 opportunities for agreement per narrative. We used the same agreement formula to calculate scoring agreement for each narrative. The second research assistant transcribed 20% of the retell and personal experience narratives from all phases. The transcription agreement between the two research assistants was 96% (range 81-100%). The same research assistant scored 30% of the retell and personal experience narratives from all phases. The scoring agreement between the two research assistants was 91% (range 58-100%).
**General language outcomes.** Often when training narrative structure, researchers find that a number of general language outcomes improve (e.g., Petersen, Gillam, Spencer, & Gillam, 2009). For this reason, we used a second measurement system, the *Systematic Analysis of Language Transcripts: Software for Analyzing English and Spanish Language Samples* (SALT; Miller & Chapman, 2004) to analyze a subset of participants’ narratives. Using the SALT software, we calculated the number of communication units (NCU), mean length of utterance (MLU), number of different words (NDW), and total number of words (TNW) for the last three baseline retell narratives and the last three intervention retell narratives for each participant. For personal experience story generations, we analyzed the pre-intervention and post-intervention narratives for general language measures.

**Grid analysis.** INC scores provide an index of overall narrative complexity, but to identify specific elements that are present or absent, we needed to inspect each INC category using a different approach. Therefore, we supplemented the INC score with a more detailed analysis of INC elements. Following transcription and INC scoring of narratives, the primary investigator recorded the presence and score of each element in an Excel file for each participant (see Appendix D). For each narrative, she marked its included elements using the following color codes: white cell for a score of zero, light grey shading for a score of one, and dark grey shading for a score of two. Although for some categories, the INC allows a score of three, none of the participants earned a score of three. Once completed, the entire series of narratives produced by each participant were displayed visually. Using this presentation method, the primary investigator searched for patterns within specific narrative elements.
Independent Variable

Instructors

The primary investigator and a research assistant served as instructors. The primary investigator implemented the procedures three days a week and the research assistant implemented the procedures once a week. The research assistant also filled in when the primary investigator was out of town. Both instructors have experience implementing narrative interventions (cf. Petersen et al., 2009) and are well-qualified language interventionists. Prior to the start of the study, the instructors practiced delivering the intervention with a group of preschool students from Cache Valley Learning Center. During field tests, one instructor observed while the other delivered the intervention. The observer recorded procedural fidelity (see fidelity checklist in Appendix E) and provided corrective feedback to the instructor. The roles switched and the feedback process continued until both instructors delivered two consecutive interventions with 100% fidelity. The instructors spent five days field testing before deciding on the steps final steps of the narrative intervention and reaching criterion.

General Procedures

Shortly after assessment sessions, we conducted small group activities with groups in the same order every day (Pink, Orange, Yellow, Blue, and White). We referred to these small group activities as “story time” whether the group was in baseline or intervention phases. While coming to “story time” was always optional, the instructors provided stickers and beads to students after each session. Most students waited excitedly
for their turn and appeared to enjoy “story time.” Throughout the entire length of the study, only one student opted not to join his group once.

**Baseline Procedures**

During baseline, “story time” consisted of instructors bringing groups to the hall and reading a story to them. The reasons for reading to the children include a) disguising phase changes and minimizing novelty effects, b) teaching students appropriate listening behaviors during sessions, c) equalizing attention among students, and d) providing an attention-control during baseline. The primary investigator selected storybooks from her personal collection of children’s books. Sample titles include *If You Give a Pig a Pancake*, *Caps for Sale*, and *Slowly, Slowly, Slowly. Slowly Said the Sloth*. While reading, the instructors did not ask questions about the book or enhance the story in any way. They simply read the book cover to cover and praised the students for appropriate listening behaviors (e.g., keeping hands still, eyes on book, and being quiet). The average length of baseline sessions was about 5 minutes.

**Narrative Intervention Procedures**

In the intervention phase, narrative intervention procedures replaced storybook reading, but we continued to call the small group activities “story time.” Just before the session, instructors randomly selected (without replacement) 1 of the 10 intervention stories to provide the basis of narrative activities in the session. After all 10 stories had been used (i.e., after ten sessions), the stories returned to the pool and the selection process repeated. The average length of intervention sessions was about 12 minutes with session times ranging from 7 to 18 minutes.
**Daily intervention steps.** The narrative intervention sessions consisted of six basic steps in which the genre of narration and level of visual support changed systematically. Although the final goal of intervention was to improve preschoolers' personal generation skills, we taught narrative structure most explicitly in a retell context. The first four steps of the intervention teach the story grammar components using realistic fictional stories, which prime students to transfer their knowledge of narrative structure to personal narratives in the last two steps. A description of each step is given below and outlined in Table 4.

**Step one: Model.** In the first step, the instructor displayed the set of pictures corresponding with the day's story (see Figure 1) in the center of the table so students saw them in order from left to right. He or she read the selected intervention story while students listened. As the instructor read each part of the story, he or she laid the story grammar icons (see Figure 2) in a lower corner of the corresponding pictures.

**Step two: Group retell.** After reading the story aloud, the instructor picked up the story grammar icons, placed them face down, and allowed students to select one without seeing which icon he/she was selecting. The icons determined which part of the story he/she would retell. Because there were five icons and only four students, the instructor told the fifth part of the story. The individual who selected the *character* icon told about the character and placed the icon on the picture. Next, the individual with the *problem* icon retold that part and placed the icon on the picture. The group retold the modeled story in parts while the instructor provided any additional vocal prompts to individual students. After each part had been retold the instructor summarized the entire story.
### Table 4

<table>
<thead>
<tr>
<th>Steps</th>
<th>Pictures Prompts</th>
<th>Icon Prompts</th>
<th>Instructor Behavior</th>
<th>Student Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5 pictures</td>
<td>5 story grammar icons</td>
<td>instructor models pre-scripted story</td>
<td>students listen</td>
</tr>
<tr>
<td>2</td>
<td>5 pictures</td>
<td>5 story grammar icons</td>
<td>instructor helps students retell parts of story; summarizes story after students retell the modeled story</td>
<td>each student retells one part of the story</td>
</tr>
<tr>
<td>3</td>
<td>5 pictures</td>
<td>5 story grammar icons</td>
<td>instructor helps one student retell entire story; summarizes story after student retells the modeled story</td>
<td>one student retells entire story; other students play story game</td>
</tr>
<tr>
<td>4</td>
<td>none</td>
<td>5 story grammar icons</td>
<td>instructor helps one student retell entire story; summarizes story after student retells the modeled story</td>
<td>one student retells entire story; other students play story game</td>
</tr>
<tr>
<td>5</td>
<td>none</td>
<td>5 story grammar icons</td>
<td>instructor asks “Has something like that ever happened to you?” and helps one student generate a similar personal experience story; summarizes story after student tells personal story</td>
<td>one student generates a personal story; other students play story game</td>
</tr>
<tr>
<td>6</td>
<td>none</td>
<td>none</td>
<td>instructor asks “Has something like that ever happened to you?” and helps one student generate a similar personal experience story; summarizes story after student tells personal story</td>
<td>one student generates a personal story; other students play story game</td>
</tr>
</tbody>
</table>

**Step three: Individual retell with pictures and icons.** The instructor left the story grammar icons and the pictures in place and passed out story game materials. With the pictures and icons available, the student sitting to the right of the instructor retold the story. While listening to the retold story, the other students and the instructor played a
story game (i.e., story bingo, story cubes, story sticks, or story gestures). In each story
game, the students listened for their friend to tell the part of the story and then pointed to
the corresponding icon on their bingo cards, turned their cubes to the correct side, held up
the corresponding stick, or made a corresponding gesture. Thus, each story game required
a discriminated response to each story grammar element. The instructor provided vocal
prompting as necessary and summarized the story when the student was finished.

*Step four: Individual retell with icons.* The instructor removed the pictures that
go with the story, but left the story grammar icons. With the visual support of the icons
available, the student sitting in the second position (second from right) around the table
retold the story. While listening to the retold story, the other students and the instructor
played a story game. The instructor provided vocal prompting as needed and summarized
the story.

*Step five: Individual generation with icons.* In this step, the student sitting in the
third chair around the table generated his or her own story. The instructor asked, “Has
something like that ever happened to you?” With the icons available, the student was
encouraged to tell a personal experience story like the modeled story. However, if they
did not have one to share, the instructor recommended that they tell a different personal
experience story. If students did not produce a personal experience story, the instructor
suggested that they tell the modeled story but in first person. Instructors ensured that
students always told a story, whether it was a personal experience story or not and
provided vocal prompting when appropriate. The group played a story game while
listening to the generated story. When the student was finished, the instructor retold this
new story.
Step six: Individual generation without visual support. The instructor removed the story grammar icons from the table and asked the student sitting in the last position, “Has something like that ever happened to you?” With no visual supports available, the student was encouraged to tell a personal experience story as described in step five and provided vocal prompting. The instructor and students played a story game while listening. When the student’s story was complete, the instructor retold his or her story.

Rotation of student roles. Before calling groups to the hall, the instructor set up for “story time” sessions. In setting up, the instructor used a predetermined schedule (see Appendix F) to label which position around the table students were to sit in. Although assigned seating was necessary for intervention only, the instructors placed nametags on the tables during baseline to get students used to sitting in an assigned seat, to facilitate an easy transition into intervention procedures, and to disguise phase changes to the class and teachers.

Student positions were systematically rotated so that each student sat in each seat once per week; this ensured that each student told a story in each step of the instructional procedure once per week. As an example, Melanie’s weekly schedule is shown in table 5. Melanie sat in the seat to the right of the instructor on Monday so she told the story in step 3. On Tuesday, she sat in the third seat and told a story in step 5. On Wednesday, she sat in the second seat and told a story in step 4; and on Thursday, she sat in the last seat and told a story in step 6. This sequence ensured that all students told a story each day and participated in each step (i.e., each task) once per week. In addition, the sequence was constructed so that students alternated between giving a retell on one day (steps 3 or 4) and a personal generation story (steps 5 or 6) on the subsequent day.
Table 5

Melanie's Weekly Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Position at table</th>
<th>Step in sequence</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>1 (right of instructor)</td>
<td>Step 3</td>
<td>Retell with pictures and icons</td>
</tr>
<tr>
<td>Tuesday</td>
<td>3 (3rd from right)</td>
<td>Step 5</td>
<td>Generate with icons</td>
</tr>
<tr>
<td>Wednesday</td>
<td>2 (2nd from right)</td>
<td>Step 4</td>
<td>Retell with icons</td>
</tr>
<tr>
<td>Thursday</td>
<td>4 (4th from right)</td>
<td>Step 6</td>
<td>Generate without icons or pictures</td>
</tr>
</tbody>
</table>

**Modeling, prompting, and rewards.** Although visual supports were available in many of the intervention steps, instructors provided additional support to make certain students successfully told each of the five main story grammar elements. The instructors developed a hierarchy of prompts prior to the study (see Appendix G), but chose to make on-the-spot decisions about what level of prompting was appropriate for individual students. Due to the range of language skills among students, some required more instructor support than others did. Similarly, a handful of students had a more difficult time with one type of genre (i.e., retell or personal experience generation). Instructors allowed 3-5 seconds of wait time before prompting students, but then provided a prompt that ensured success so students would not become frustrated. To estimate the amount and intensity of prompts delivered during intervention, we analyzed a subset of recorded intervention session. The primary investigator counted the number of prompts provided and tracked the level of prompts in groups’ first and last intervention sessions. In
addition, she recorded the number of prompts provided from week to week for two groups.

Intervention stories integrated the main five story grammar elements (i.e., character, problem, internal response, action, and consequence) with relational and supplemental narrative elements. For example, each story included causal, temporal, and formulaic markers and one instance of dialogue. We designed the procedures to prompt the five main elements and model the rest. When students produced their parts of the stories or produced a story individually, instructors made sure that each of the five main elements were mentioned, but did not prompt students to use the other elements. For example, when the instructor modeled and restated the stories, he or she said, “John was sad because his knee hurt.” When it was the student’s turn and he or she paused after stating the problem, the instructor prompted asking something like, “How did John feel?” The student could respond, “He was sad.” However, the instructor did not prompt the student to say, “He was sad because he got hurt.” When students were absent, the instructor produced the story or parts of the story that students typically complete. This was necessary to make certain that the students experienced the same sequence of activities including hearing the pre-written story 7 times and two student-generated stories two times each.

To help enhance students’ willingness to participate, we provided a variety of rewards contingent upon their attendance during intervention sessions. Following each student’s individual turn, instructors stamped the student’s hand with a washable marker stamp (e.g., smiley face, star, and swirl). At the end of each intervention session, the instructor displayed a variety of stickers and beads for the students to select one. Students
returned to class each day with their stickers, but the instructors maintained the beads throughout the course of the study. When the study was completed, the primary investigator gave the beads to the students and helped them make necklaces.

**Narrative Intervention Fidelity**

To ascertain whether the instructors delivered the narrative intervention as planned, we assessed the fidelity of implementation using a procedural checklist. A third research assistant watched video recordings of 35% of the total intervention sessions and scored each session for percent of steps completed correctly. The fidelity checklist included 56 steps and a detailed scoring code (see Appendix E). The average fidelity of implementation was 98% with a range of 78-100%. One instructor’s fidelity of implementation was 98% and the second instructor’s fidelity was 99%.

**Social Validity**

We measured social validity in two ways. First, four Head Start teachers viewed a video recording of an intervention session and completed a questionnaire about the appropriateness of the intervention and its feasibility in the classroom (see Appendix H). Second, the same four teachers read two unmarked transcripts of retell narratives produced by each participant (two stories for each of the seven participants). We selected the baseline narrative with the median INC score and the median INC scored narrative from the last three intervention narratives for the teachers to read. After reading them, the primary investigator asked them to write a check mark on the better of the two stories, without explaining what “better” meant.
Experimental Design and Phases

We investigated the effect of narrative intervention on preschoolers’ story retell skills using a multiple baseline across participants design. To examine the effect of narrative intervention on personal experience story generations, we also implemented a multiple baseline design. However, because we could not ensure participants would produce a personal experience narrative, we plotted generation data without data paths. Effects on both types of narration were assessed in three phases: baseline, intervention, and maintenance.

Baseline

An examiner elicited a pre-intervention personal experience story generation for each target participant at the beginning of the baseline phase. During the baseline phase, she elicited daily retell narratives and gave participants an opportunity to tell personal experience narratives immediately following the retell elicitation (probed generations). A few minutes after assessment sessions with target participants, the instructor conducted “story time” with each of the five groups. In baseline, “story time” consisted of reading children’s books to the group rather than delivering the narrative intervention.

Intervention

Assessment of retell narratives and opportunities to produce personal narrative generations (i.e., probed generations) continued daily throughout the intervention phase. When groups entered the intervention phase, they received the narrative intervention instead of storybook reading during “story time.” The day after their last intervention
session, participants generated personal experience stories in a conversation/play context with the examiner (i.e., post-intervention generation).

**Maintenance**

The last intervention session occurred three weeks before the last day of school at Head Start. For two weeks, the children attended Head Start as they typically did, but did not participate in narrative assessments or "story time." At the end of the 2-week maintenance phase and 2 weeks after they produced post-intervention generations, the examiner elicited retell narratives and probed for personal experience generations immediately following the retell; that is, she implemented the same assessment procedures that were carried out prior to each baseline and intervention session. On the next day, the examiner implemented the conversation elicitation procedures to collect maintenance personal experience generations. One target participant was absent the last 2 weeks of school due to a death in her family. She was unavailable for maintenance assessments.

Since we applied the intervention at the group level but assessed individual participants, groups entered the intervention phase based on target participants' stable baseline patterns. The five target children initially selected as participants make up three legs of a multiple baseline design. Two of the groups included two target participants; therefore, there are two panels for two of the legs. The second group to enter the intervention phase included the two participants who scored within the average range on the *Bus Story*. Because these participants did not fit the original selection criteria, we handled this group separately.
CHAPTER IV

RESULTS

Index of Narrative Complexity (INC)

The primary objective of this study was to examine the effect of a narrative intervention on preschoolers’ narrative retelling skills. An examiner elicited daily retell narratives from each participant across baseline, intervention, and maintenance phases. We used a modified version of the Index of Narrative Complexity (INC) to score retell narratives and displayed them using multiple baseline graphing conventions. Secondary research objectives addressed the extent to which narrative intervention improved preschoolers’ ability to generate personal experience narratives and the extent to which the effect of narrative intervention maintained after two weeks of no intervention. We elicited personal experience story generations using two different procedures. The first elicitation procedure occurred immediately following the daily retell elicitation. The examiner read the assessment story, asked the participant to retell it, and after the child retold the story, the examiner asked, “Has something like that ever happened to you?” We did not require a response; if the participant indicated that they did not have a story to tell, no data was recorded for the story generation for that session. As a result, the graphed data series of probed generations show numerous sessions with no data. The second procedure, conversation-elicitation technique, was implemented at pre-intervention, post-intervention, and maintenance assessments. In this procedure, we elicited personal experience narratives in a natural conversation context. The examiner and the participant played together or completed a puzzle together while talking. The
examiner told a personal experience story and then gave the participant an opportunity to
tell a story about him or herself. To increase the likelihood the participant would give at
least one story, the examiner shared three stories and attempted to elicit a personal
narrative after each. We selected the participants’ best story for analysis. We used the
modified INC to score personal experience narratives and graphed the results using
multiple probe design conventions.

Results for three types of narratives are displayed in Figures 3 and 4. Narrative
retells, the primary dependent variable, are shown by filled dots. Open markers indicate
secondary dependent variables – probed generations are marked by open squares and
pre/post generations are marked by open triangles. We analyzed each panel of the
multiple baseline graph individually for improvements in level, trend, and variability. In
addition, we calculated effect size estimations for each participant using the percent of
non-overlapping data (PND) method. Table 6 shows phase means, gain scores, and PNDs
for all participants.

Jenny’s INC scores are displayed in the top panel of Figure 3. During baseline,
Jenny’s narrative retells received low stable scores with a phase mean of 0.6. Although
we observed a level change during intervention (phase mean of 3.6), the effect on retell
scores was not immediate. After four data points at zero, a slow, variable, ascending trend
occurred. Because narrative improvement was not immediate, the effect size estimation
was also moderate (PND = 53%); however, seven of her last eight data points in the
intervention phase where higher than her highest data point in baseline.
Figure 3. Narrative retell and personal generation INC scores for five target participants.
Jenny's best retell performance received a score of 10, which was 8 points higher than her best performance in baseline. At maintenance, Jenny's retell narrative score remained high at 10. Jenny did not produce any probed generations in baseline but during the intervention phase, the data follow a variably ascending pattern. At the pre-intervention assessment, Jenny's personal experience generation received a score of 4; at the end of the intervention phase, her personal experience generation received a score of 10; and after the 2-week maintenance phase her personal experience generation score dropped slightly to 6. Jenny received 14 intervention sessions and was absent nine times during the intervention phase (61% attendance).

Melanie's results are displayed in the second panel of Figure 3. Her baseline retell scores were consistently low with a phase mean of 0.3. After only one session of the narrative intervention, her retell scores increased dramatically and maintained high throughout the intervention phase (PND = 100%, mean of 9.0). Her best retell performance during the intervention phase was 13, which was 12 points higher than her best baseline retell performance. Melanie was reluctant to share personal experience stories when they were probed following retells. However, after 11 intervention sessions she began sharing stories. These data are variable with the higher data points in an ascending pattern. At the pre-intervention assessment, Melanie's personal experience story generation earned a score of one. Her corresponding post-intervention personal experience narrative scored 17 - 16 points higher than pre-intervention. Melanie was unavailable for assessment at the end of the maintenance phase. Therefore, there are no narratives from which to evaluate maintenance of her narrative skills. Melanie
Figure 4. Narrative retell and personal experience generation INC scores for two supplemental participants.

Table 6

*Phase means, Phase Changes, Gain Scores, and Percent of Non-Overlapping Data for Retell Narratives*

<table>
<thead>
<tr>
<th></th>
<th>Baseline Phase Mean</th>
<th>Intervention Phase Mean</th>
<th>Phase Mean Change</th>
<th>Best Retell Gain</th>
<th>Percent of Non-Overlapping Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jenny</td>
<td>0.6</td>
<td>3.6</td>
<td>3.0</td>
<td>8</td>
<td>53%</td>
</tr>
<tr>
<td>Melanie</td>
<td>0.3</td>
<td>9.0</td>
<td>8.7</td>
<td>12</td>
<td>100%</td>
</tr>
<tr>
<td>Nicky</td>
<td>1.3</td>
<td>4.3</td>
<td>3.0</td>
<td>5</td>
<td>58%</td>
</tr>
<tr>
<td>Ellie</td>
<td>0.2</td>
<td>8.0</td>
<td>7.8</td>
<td>11</td>
<td>94%</td>
</tr>
<tr>
<td>Adam</td>
<td>2.9</td>
<td>7.7</td>
<td>4.8</td>
<td>9</td>
<td>72%</td>
</tr>
<tr>
<td>Lola</td>
<td>8.6</td>
<td>12.6</td>
<td>4.0</td>
<td>3</td>
<td>73%</td>
</tr>
<tr>
<td>Aimee</td>
<td>6.3</td>
<td>9.0</td>
<td>2.7</td>
<td>2</td>
<td>45%</td>
</tr>
</tbody>
</table>
participated in 22 intervention sessions and was absent only once throughout the duration of the intervention phase (96% attendance).

Nicky’s results are displayed in third panel of Figure 3. Her baseline retell narratives received low and stable scores between zero and 3 (phase mean of 1.3). Once the intervention phase began, Nicky’s retell narrative scores remained at a level similar to baseline for two sessions, then improved in a moderately ascending pattern throughout the rest of the phase. The mean score for the phase was 4.3, but her best intervention retell narrative earned a score of 8, which is an improvement of 5 points (PND=58%). At the maintenance assessment, her retell narrative maintained high (9). On probed generations, her scores remained stable through baseline and intervention phases (2 to 3) with one score at six. Nicky’s pre-intervention generation was scored a 6 and her post-intervention generation was scored a 7, which is only a 1-point improvement. At the maintenance assessment, her personal experience story received a score of 4. Nicky participated in 12 intervention sessions but was absent six times during the intervention phase (67% attendance).

Ellie’s INC scores are shown in the fourth panel. Her baseline retell narratives were consistently low (phase mean of 0.2). Quickly following the introduction of the narrative intervention, the level of Ellie’s retell narratives increased substantially (phase mean of 8.0) and remained high (10) after the 2-week maintenance phase. In general, the intervention data pattern is reasonably stable with very few overlapping data points (PND = 94%). Ellie’s best retell performance during intervention was a score of 12, which was 11 points higher than her best baseline retell performance. Although Ellie typically generated personal stories when probed after retells, she made no discernable
improvements on probed generations. In contrast, Ellie’s personal experience (pre/post generation) INC scores improved 6 points from pre-intervention (5) to post-intervention (11) and decreased slightly to 7 after the maintenance phase. Ellie was never absent and she received 17 narrative intervention sessions.

Adam’s results are displayed in the bottom panel of Figure 3. His retell narrative scores improved early in baseline, then stabilized between 2 and 5 (phase mean of 2.9) across the last 11 sessions. After three intervention sessions, his retell scores increased significantly (phase mean of 7.7). His retell scores were quite variable at first, but then stabilized around 9. Adam’s best intervention retell performance of 14 was 9 points higher than his best baseline retell performance (5). In addition, there was an increase in trend from baseline to intervention with a PND of 72%. On the maintenance assessment, Adam’s retell score maintained at eight. During the intervention phase, Adam shared only one probed personal experience story. At a score of 6, it was 2 points higher than his best baseline probed generation. Adam’s conversation-elicited personal experience narrative score increased from 2 at pre-intervention to 8 at post-intervention. Following the 2-week maintenance phase, his personal experience narrative score maintained at 8. Adam participated in 13 narrative intervention sessions and was never absent during the intervention phase.

Figure 4 shows the results of the two participants who had average story telling skills prior to intervention. In the top panel, Lola’s baseline retell narratives were variable and ascending with a phase mean of 8.6 and a high score of 12. Shortly after the implementation of the intervention, her retell scores became less variable and closer to the scoring ceiling of the assessment stories (16) with a phase mean of 12.6. Her best
retell performance in the intervention phase was 15, which is 3 points higher than her best baseline retell performance. Despite the ascending pattern in baseline, the PND was moderately high at 73%. Lola’s retell improvements maintained following the 2-week break with a score of 15. Lola produced only one probed generation during baseline with a score of 2 and did not generate another one until after seven intervention sessions. Interestingly, when Lola began generating probed personal experience stories they ascended rapidly. Lola’s post-intervention personal experience narrative earned an 11 compared to her pre-intervention score of zero. At the maintenance assessment, her personal experience narrative remained high at 12. Lola participated in 15 intervention sessions and was absent four times during the intervention phase (79% attendance).

Aimee’s results are shown in the bottom panel of Figure 4. During baseline, Aimee’s retell narrative scores were extremely variable with a phase mean of 6.3 and a high score of 10. The first part of the intervention phase, the variability decreased somewhat but showed only a slight level change. Variability increased in the second half of the intervention phase and the mean retell score for the phase was 9.0. The difference between Aimee’s best baseline (10) and intervention (12) retell scores is only 2 points. Reflecting the extreme variability in her data, Aimee’s retell narrative PND was only 45%. At the maintenance assessment, Aimee’s retell narrative received a score of 11. Aimee occasionally shared personal experience stories following the retell elicitation. However, the pattern is variable with no discernable trend. Aimee’s pre-intervention personal experience narrative earned a score of 5 and her post-intervention narrative received a score of 9. At the maintenance assessment, Aimee’s personal experience
narrative earned a score of 10. Aimee participated in 22 intervention sessions and was never absent during the intervention phase.

**General Language Outcomes**

When researchers and practitioners train narrative structure, a number of general language constructs may also be affected. For this reason, we analyzed transcripts of retell and personal experience narratives for number of communication units (NCU), mean length of utterance (MLU), number of different words (NDW), and total number of words (TNW). The average NCU, MLU, NDW, and TNW were calculated from participants’ last three baseline retells to serve as pre-intervention general language measures and last three intervention retells for the post-intervention measures. These general language measures were also computed for participants’ conversation-elicited personal experience story generations. These results are displayed in Figures 5, 6, 7, and 8. In general, participants produced longer narratives (both retell and personal experience) at post-intervention than pre-intervention with a greater number of different words, more communication units and increased lengths of utterances. However, there are a number of individual differences worth mentioning (see Tables 7 and 8). On retell narratives, Melanie, Ellie, and Adam made consistent gains on all measures (NCU, MLU, NDW, TNW); however, Aimee, Lola, Jenny, and Nicky each failed to improve on at least one of the general language measures. Similarly, on personal experience generation narratives, all participants except two showed improvements on all measures; and these two participants showed decrements on only one measure each. Ellie produced lengthy
pre-intervention stories compared to her post-intervention stories and Jenny's MLU decreased from pre-intervention to post-intervention by two words.

Figure 5. Number of communication units in retell and personal experience narratives.

Figure 6. Mean length of utterance in retell and personal experience narratives.
Figure 7. Number of different words in retell and personal experience narratives.

Figure 8. Total number of words in retell and personal experience narratives.
### Table 7

**General Language Measures for Retell Narratives**

<table>
<thead>
<tr>
<th></th>
<th>Number of Communication Units</th>
<th>Mean Length of Utterance</th>
<th>Number of Different Words</th>
<th>Total Number of Words</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Gain</td>
<td>Pre</td>
</tr>
<tr>
<td>Jenny</td>
<td>6.0</td>
<td>6.0</td>
<td>0.0</td>
<td>4.3</td>
</tr>
<tr>
<td>Melanie</td>
<td>0.3</td>
<td>7.3</td>
<td>7.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Nicky</td>
<td>1.7</td>
<td>4.0</td>
<td>2.3</td>
<td>6.7</td>
</tr>
<tr>
<td>Ellie</td>
<td>4.3</td>
<td>6.7</td>
<td>2.4</td>
<td>5.9</td>
</tr>
<tr>
<td>Adam</td>
<td>3.0</td>
<td>5.7</td>
<td>2.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Lola</td>
<td>5.3</td>
<td>7.0</td>
<td>1.7</td>
<td>6.8</td>
</tr>
<tr>
<td>Aimee</td>
<td>5.3</td>
<td>6.7</td>
<td>1.4</td>
<td>7.5</td>
</tr>
</tbody>
</table>

### Table 8

**General Language Measures for Personal Experience Narratives**

<table>
<thead>
<tr>
<th></th>
<th>Number of Communication Units</th>
<th>Mean Length of Utterance</th>
<th>Number of Different Words</th>
<th>Total Number of Words</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Gain</td>
<td>Pre</td>
</tr>
<tr>
<td>Jenny</td>
<td>4</td>
<td>10</td>
<td>6</td>
<td>7.5</td>
</tr>
<tr>
<td>Melanie</td>
<td>5</td>
<td>16</td>
<td>11</td>
<td>4.0</td>
</tr>
<tr>
<td>Nicky</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Ellie</td>
<td>6</td>
<td>3</td>
<td>-3</td>
<td>4.8</td>
</tr>
<tr>
<td>Adam</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>Lola</td>
<td>0</td>
<td>9</td>
<td>9</td>
<td>0.0</td>
</tr>
<tr>
<td>Aimee</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>6.3</td>
</tr>
</tbody>
</table>
Grid Analysis

By displaying the elements included in each narrative on grids (see Appendix D), a number of additional analyses were possible. One secondary objective of the study involved an examination of the number of sessions necessary to reach mastery. We employed three definitions for mastery and displayed the number of sessions each participant needed to reach mastery (according to each definition) in Table 9. One way of defining mastery was giving a complete episode, appropriate for preschoolers (i.e., problem, action, and consequence; Peterson & McCabe, 1983). Another way of defining mastery was an INC score of eight. We identified eight as a mastery criterion because during field testing we found that when children included the basic story grammar elements (i.e., problem, action, and consequence), their narratives also earned an INC score of eight or higher. Lastly, we defined mastery as including all five main story grammar elements prompted during intervention.

The three definitions of mastery showed good consistency – for most participants, once one definition was met, others were met within a small number of sessions. With the exception of Nicky, all participants met mastery according to the first two definitions in the same session. From participant to participant, however, the number of sessions necessary to meet mastery varied considerably. Lola and Aimee, the two participants with average narrative skills prior to intervention, produced multiple complete episode stories with scores of eight or more during the baseline condition. Prior to intervention, Lola produced one retell narrative with all five main story grammar elements. Aimee required
Table 9

*Number of Sessions to Mastery*

<table>
<thead>
<tr>
<th>Target Participants</th>
<th>One Retell with Complete Episode</th>
<th>One Retell with Score of Eight</th>
<th>One Retell with Five Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jenny</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Melanie</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Nicky</td>
<td>11</td>
<td>4</td>
<td>&gt;12</td>
</tr>
<tr>
<td>Ellie</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Adam</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Supplemental Participants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lola</td>
<td>BL</td>
<td>BL</td>
<td>BL</td>
</tr>
<tr>
<td>Aimee</td>
<td>BL</td>
<td>BL</td>
<td>4</td>
</tr>
</tbody>
</table>

*Note. BL = Baseline*

four sessions of intervention before she met the most stringent definition of mastery (i.e.,
five main story grammar elements). Melanie, Ellie, and Adam produced complete
episode retell narratives with scores of eight or more after just one, two, and three
sessions, respectively. After only two more intervention sessions each, Melanie, Ellie, and Adam included all five main elements in at least one retell narrative. Jenny met all
three definitions of mastery after nine sessions. In other words, the first time she
produced a complete episode, she also scored at least an eight and included all five main
story grammar elements. Interestingly, Nicky received a score of eight without including
a complete episode (problem, action, and consequence). Nicky produced a retell with a
score of eight after only four sessions, but did not produce a complete episode until she
had received 11 intervention sessions. Also with the exception of Nicky, all participants produced at least one story that included all five of the prompted story grammar elements.

Another grid analysis was completed to address the research question, “To what extent does narrative intervention, in which only the five main story grammar elements are prompted, affect preschoolers’ inclusion of all elements?” By inspecting the last three baseline (Pre) and the last three intervention (Post) retell narratives of each participant, we identified the percent of narratives that contained each element. We hypothesized that participants would more often include the main story grammar elements (i.e., character, problem, internal response, action, and consequence) after intervention because instructors ensured participants told those parts of the stories during intervention. Less certain, however, was whether participants would include setting, formulaic markers, dialogue, causal markers, and temporal markers because these features were not prompted during intervention. Table 10 displays the percent of retell narratives including each element collapsed across all participants. The five elements directly prompted during the intervention sessions were character, problem, internal response, action, and consequence. With the exception of internal response, these prompted elements showed the highest post-intervention scores (86%-95% of stories) and the largest gains (57-71 percentage points) from pre-intervention to post-intervention. Despite being directly prompted during intervention sessions, internal response was included slightly less often after intervention than before it (loss of 10 percentage points). Temporal and formulaic markers, although not prompted during intervention, were included much more often following intervention with gains of 52 and 38 percentage points, respectively. In
<table>
<thead>
<tr>
<th>Prompted</th>
<th>Pre</th>
<th>Post</th>
<th>Gain (Percentage Points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>character</td>
<td>38%</td>
<td>95%</td>
<td>57</td>
</tr>
<tr>
<td>problem ^a</td>
<td>38%</td>
<td>95%</td>
<td>57</td>
</tr>
<tr>
<td>internal response</td>
<td>23%</td>
<td>14%</td>
<td>-10</td>
</tr>
<tr>
<td>action ^a</td>
<td>19%</td>
<td>86%</td>
<td>67</td>
</tr>
<tr>
<td>consequence ^a</td>
<td>23%</td>
<td>95%</td>
<td>71</td>
</tr>
<tr>
<td>Unprompted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>setting</td>
<td>14%</td>
<td>48%</td>
<td>34</td>
</tr>
<tr>
<td>dialogue</td>
<td>24%</td>
<td>24%</td>
<td>0</td>
</tr>
<tr>
<td>temporal marker</td>
<td>28%</td>
<td>81%</td>
<td>52</td>
</tr>
<tr>
<td>causal marker</td>
<td>14%</td>
<td>24%</td>
<td>10</td>
</tr>
<tr>
<td>formulaic marker</td>
<td>38%</td>
<td>76%</td>
<td>38</td>
</tr>
</tbody>
</table>

^a Indicates story grammar elements required for a complete episode

contrast, little change was seen in dialogue and causal markers, with gains of zero and ten percentage points, respectively. The setting element was included in only 48% of the post-intervention retell narratives but had a gain of 34 percentage points.

**Prompt Analysis**

During each intervention session, instructors made on-the-spot decisions about the most appropriate level of prompt to use (see Appendix G). To describe the pattern of prompting, we conducted a post-hoc analysis of prompts using a subset of all intervention
sessions. These data are presented in a number of ways. First, we selected two groups for weekly analysis. The orange group was a lower performing group with two target participants and received intervention over a 7-week period. The yellow group was a higher performing group with two target participants and their intervention spanned a 4-week period. Due to a systematic rotation of student roles from Monday to Thursday, students received a different level of visual support each day of the week. For example, on Monday, pictures and icons were available; on Tuesday and Wednesday, only the icons were available; on Thursday, no pictures or icons were available. Additionally, students told different types of stories each day (i.e., retell versus personal experience narratives). In order to compare prompts across weeks, it was necessary to examine the pattern of prompts from the same day each week. We examined Monday sessions for the yellow group and Wednesday sessions for the orange group. Figure 9 shows the number of prompts per student for orange and yellow groups across weeks of intervention. For both groups, the number of prompts was initially high, decreased sharply after the first week and then followed a fairly stable descending pattern for the remaining weeks.

In a second analysis, we calculated the total number of prompts per student for each group in their first intervention session and their last (see Figure 10). For all groups the number of prompts necessary was substantially less during the last session than the first. These data are also summarized as Group Totals in Table 11.

In a third analysis, we analyzed changes in prompt levels. Level one prompts included indirect questions such as “What’s next?” or “Then what happens?” Direct questions (e.g., “Who is the character of the story?”) and telling the student what element to include
Figure 9. Average number of prompts per student across weeks of interventions for two groups.

(e.g., “You need to tell about the problem.”) were considered level two prompts. Level three included cloze procedures such as “He hurt his knee. Now he feels ______.” If the examiner modeled part of the story for the student (e.g., “She was sad.”), it constituted a level four prompt. Table 11 shows the average number of prompts per student at each level in each group’s first and last intervention sessions. Level four prompts (i.e., modeled statements) were the most intrusive prompts provided and during the first sessions, 1.00 to 1.70 of these prompts were delivered per student. In the last sessions, the number of level four prompts ranged from 0.00 to 0.60. The delivery of level four prompts was consistent across groups as evident by fairly narrow ranges. During the first sessions, level three prompts (e.g., “She walked down stairs and found ______.”) were used 1.00 time per student or fewer in each group; during the last sessions, level three prompts were used 0.25 or 0.00 times per student in each group.
Figure 10. Average number of prompts per student during the first and last intervention sessions for each group.

Table 11

Average Number of Prompts per Student per Level During the First and Last Intervention Sessions for Each Group

<table>
<thead>
<tr>
<th>Prompt Levels</th>
<th>Orange First</th>
<th>Orange Last</th>
<th>Pink First</th>
<th>Pink Last</th>
<th>Yellow First</th>
<th>Yellow Last</th>
<th>Blue First</th>
<th>Blue Last</th>
<th>Averages First</th>
<th>Averages Last</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1.00</td>
<td>0.60</td>
<td>1.00</td>
<td>0.00</td>
<td>1.70</td>
<td>0.00</td>
<td>1.30</td>
<td>0.25</td>
<td>1.25</td>
<td>0.20</td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
<td>0.00</td>
<td>0.30</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.30</td>
<td>0.25</td>
<td>0.40</td>
<td>0.06</td>
</tr>
<tr>
<td>2</td>
<td>3.75</td>
<td>0.60</td>
<td>2.00</td>
<td>0.30</td>
<td>2.30</td>
<td>0.50</td>
<td>3.60</td>
<td>0.50</td>
<td>2.90</td>
<td>0.48</td>
</tr>
<tr>
<td>1</td>
<td>3.50</td>
<td>0.60</td>
<td>2.30</td>
<td>0.00</td>
<td>0.60</td>
<td>0.00</td>
<td>1.30</td>
<td>1.25</td>
<td>1.90</td>
<td>0.46</td>
</tr>
<tr>
<td>Group Totals</td>
<td>9.25</td>
<td>1.80</td>
<td>5.60</td>
<td>0.30</td>
<td>4.60</td>
<td>0.50</td>
<td>6.50</td>
<td>2.25</td>
<td>6.45</td>
<td>1.20</td>
</tr>
</tbody>
</table>
Overall, level three prompts were used least often. In fact, no level three prompts were used in the yellow group during the first or last sessions.

For orange, yellow, and blue groups, level two prompts (e.g., “What is Hannah’s problem?”) were used most often in intervention. For the pink group, level two prompts were used slightly less often than level one. Although compared to other levels, level two prompts were relatively high; they were also less consistent across groups. For example, the orange group required 3.75 level two prompts per student during the first session while the pink group only needed 2.00 level two prompts. During the last sessions, level two prompts were much more consistent with a range between 0.30 and 0.60 for level two prompts.

The number of level one prompts (e.g., “Then what happened?”) differed substantially depending on the group. For example, the orange group received 3.50 level one prompts during the first session and the yellow group only received 0.60 prompts per student. Even during the last session, the number of level one prompts ranged broadly from 0.00 to 1.25 per student.

When prompts were combined across groups (see Averages), level four, two, and one prompts were provided at high levels per student during the first sessions; however, during the last sessions, no single type of prompt was used more than 0.50 times per student. All levels of prompting decreased considerably from the first to last sessions. Level four prompts decreased 84%; level three prompts decreased 85%; level two prompts decreased 83%; level one prompts decreased 75%. From first to last session, the proportion of level one prompts increased from 29% to 38% of the total prompts, while the proportion of level two, three, and four prompts decreased slightly. Thus, not only did
the overall numbers of prompts decrease from the first session to the last session, there was also a moderate shift from more intrusive prompts to less intrusive prompts.

Social Validity

A final research question addressed the social validity of the intervention and outcome. To examine the appropriateness and feasibility of the intervention, four Head Start teachers responded to five statements after watching a video recording of an intervention session. They scored level of agreement with each statement by circling numbers 1-5, where one was strongly disagree and five was strongly agree (see Appendix H). Mean agreement scores for each statement are as follows: *Story-telling is an important aspect of language* (5); *The activities were appropriate for preschoolers* (4.75); *The students enjoyed the activities* (4.5); *The activities can be adapted for use in a classroom with a larger group* (4); *I am interested in using these activities to teach story-telling in my classroom* (4.75). To investigate the social validity of the outcomes (i.e., narrative improvement), the same four Head Start teachers read two retell narratives (i.e., baseline narrative with median score and intervention phase narrative with median score from last three sessions) for each participant, and chose the one they thought was a better story. Overall, the teachers identified participants’ intervention retell narrative as the better story 71% of the time. All four teachers identified Lola, Aimee, and Melanie’s intervention stories as the better stories. For two participants (Adam and Jenny), three of the four teachers identified the intervention narrative as the better story. Only one teacher identified Nicky and Ellie’s intervention stories as the better story; that is, three of the four teachers ranked their pre-intervention stories as better quality.
CHAPTER V
DISCUSSION

Narrative Retell Skills

Narrative retelling is an important oral language task that is often included in Kindergarten readiness assessments (e.g., HELP for Preschoolers Assessment and Curriculum Guide) and state curriculum standards (e.g., Utah Education Network, 2003). The ability to retell stories combines listening comprehension and oral language skills. Both are important aspects of literacy and can help support further literacy development. Providing narrative instruction in preschool may help prepare at-risk children for success in Kindergarten and for later literacy instruction.

The primary objective of the current study was to examine the effect of a narrative intervention on at-risk preschoolers' narrative retelling skills. We found that this narrative intervention produced substantial improvements in the preschoolers' retelling skills. According to visual displays and statistical summaries, all five target participants' retell scores improved with narrative instruction. During baseline, participants' narrative performance was low and stable, showing no tendency to rise to the levels observed in intervention. Clear level and/or trend changes occurred for all five participants. When changes were observed for participants receiving intervention, the participants who remained in baseline did not show changes. Additionally, four of the participants showed notable progress after only a few sessions of intervention. Moreover, we demonstrated this effect at three points in time. All four participants, for whom maintenance data were gathered, maintained scores above baseline levels after a two-week break.
Participants were eligible for Head Start in the at-risk category; in addition, they were from ethnically and linguistically diverse backgrounds. Jenny and Melanie are Caucasian English-speaking children; Nicky is English speaking but her parents are American Indian; Ellie is bilingual Spanish and English; and Adam is an English Language Learner (ELL), whose primary language is Spanish. Participants’ results were quite similar across language and cultural differences. The diversity of participants and their relatively consistent outcomes enhance the study’s external validity, suggesting the effect of narrative intervention on retell skills can be generalized to a variety of at-risk preschoolers. However, this conclusion must be considered tentative due to the relatively few participants included in our study.

We noted several specific participant behaviors that corresponded with the of pattern results. Melanie and Ellie displayed similar behaviors during baseline that suggest they had sufficient expressive language already in their repertoire. Melanie and Ellie understood the task expectation; however, neither of them could recall parts of the modeled story during baseline. Ellie produced multiple personal experience generations in baseline, but had difficulties with retells. While pointing to the story the examiner had just read she said, “This story? I can’t remember that story.” Likewise, Melanie said, “I can tell a different story.” During baseline, Melanie produced lengthy narratives, almost none of which could be scored as story grammar. Her stories never named a character or identified a problem and did not resemble the modeled stories. Ellie’s story generations in baseline scored consistently higher than her retells. This suggests that, similar to Melanie, she already had many of the component skills required to produce high quality retells. Both of these girls needed very little instruction on the main story grammar
elements to remember the modeled story and put their expressive language into a coherent and meaningful retell. Their stories improved rapidly and substantially once intervention began.

Jenny and Nicky, who showed slower ascending patterns, also had characteristics in common. Both girls were younger, frequently absent, and appeared to be shy. It was difficult to gauge whether lower verbal skills were mistaken for shyness; however, in groups these girls rarely spoke up without direction from an adult. On their individual turns during intervention sessions, they paused frequently, which gave opportunities for other students to interrupt them with the answer. When analyzing each groups’ last intervention session for prompts, we noticed that these two girls still required some prompting during their individual turns. The level and intensity of prompts had decreased from the first session to the last, but most other students did not require any prompts by the last session. These two girls were also two of the youngest participants. Jenny was 4 years and 6 months and Nicky was 4 years 3 months old at the beginning of the study. The average age of the participants was 4 years 7 months. Lastly, inconsistent attendance was another potential contributor to the observed pattern. Jenny missed nine days of intervention. Most of the days missed were in the first half of the intervention phase where she made the least progress; however, she also missed a few days in the second half of the intervention phase. Nicky missed six days of intervention. Given that her group only received 18 total sessions, she missed one third of the available instruction. Nicky’s absences were spread throughout the intervention phase. We cannot know whether more regular attendance would have produced data patterns more similar to the
others, but it seems likely. While the effect is weaker with these two girls, they showed narrative improvements despite frequent absences.

Adam, an ELL, produced an abrupt change in trend just after the phase change. At the beginning of the study, Adam’s English sentences were limited to two to three words, but he demonstrated eagerness. He was extremely compliant and responded quickly and loudly when it was his turn. Adam’s performance showed a slightly ascending trend in the first part of baseline, then stabilized for several sessions before intervention began. The initial ascension in baseline might be due to some learning from exposure to the assessment stories. This increasing trend might also suggest Adam acquires new skills quickly even in the absence of structured teaching. Nonetheless, exposure to assessment tasks was not sufficient to increase Adam’s INC scores above five or to produce complete episodes. Given his high motivation and willingness to engage in language tasks, his rate of acquisition with explicit teaching is not entirely surprising.

To examine the effect of the narrative intervention on preschoolers with somewhat more sophisticated language skills, we included two additional participants. Prior to intervention, Lola and Aimee scored within the average range on the Bus Story (in contrast to the other participants who all scored at least one standard deviation below the mean on this assessment), but did not generate personal experience stories with more than four elements. Both girls’ baseline retell scores ascended in a variable pattern. When intervention began, Lola’s retell scores became more stable in a high range close to the ceiling of the modeled stories (INC = 16). During intervention, Aimee’s retell scores stabilized for about nine sessions before returning to extreme variability. We believe that the task was easy for her because in general, she retold the stories very quickly and used
almost the exact wording from the modeled story. When the data dip low in the
intervention phase she appeared to be less motivated to tell the whole story. For instance,
one Aimee stated the problem of the assessment story and said, “I’m done. That’s all I
want to say.” Anecdotally, we noted that Lola and Aimee began including very minute
elements of the stories toward the end of the study. In each assessment and intervention
story, we embedded one adjective (e.g., yummy, purple) and one adverb (e.g., quickly,
kind of). Our intent was to level stories on complexity rather than to teach these language
features. Nonetheless, Lola and Aimee attended to them in the modeled stories and
included those types of words in their own retells and generations. It is possible, that our
scoring system was not sensitive enough to detect all the linguistic improvements these
girls made. In addition, we did not design our intervention to teach features more
advanced than the basic story grammar, supplemental elements (e.g., formulaic markers,
and dialogue), and relational elements (e.g., causal and temporal markers); thus these two
participants may have already mastered most of the skills targeted in our instruction.

Lola and Aimee had variably ascending baseline patterns and Bus Story scores in
the average range. It is possible that improvements during baseline were related to
increasing familiarity or comfort with the task. However, we did not see the same degree
of improvement in all participants’ baseline retells scores. The fact that the other five
participants’ baseline scores are generally low and stable, suggests that Lola and Aimee’s
improvements without intervention are related to their entry narrative abilities. For these
two girls, practicing retelling stories in the assessment context was sufficient to improve
their retell scores. Apparently, for some children who have adequate language skills no
additional or explicit instruction is necessary. However, for children with less developed
language skills direct instruction of narrative structure and practice appears to be necessary to produce improvements across the timeframe studied.

While the current study offers strong evidence that narrative intervention is an effective strategy to improve at-risk preschoolers’ retell skills, it is not without challenges and limitations. For one, preschool children are challenging participants. Compared to older children, preschoolers are more likely to be distractible, more sensitive to rapport with the examiner and instructors, and more prone to speaking quietly or unintelligibly. To build rapport before beginning the study, the examiner and instructors spent several days in the classroom getting to know the children. We went to great lengths to eliminate as many distractions as possible from assessment and intervention environments. Occasionally, participants ended their retell or generation stories abruptly when people walked by or an unusually loud noise came from a classroom. We conducted assessment and intervention sessions in the hall to reduce the problem of noise on our recording devices. Even with these precautions, some of our participants spoke so softly or with such unclear articulation that we were not able to understand every word. Investigators who conduct research with preschoolers have the challenge of separating real effects from confounds introduced by attention, rapport, and unintelligibility. While these challenges certainly played a role in how we carried out the study, we do not believe they weaken our conclusions in any way. Our informal observations suggest that the problems of distractibility and unintelligibility were similar in baseline and intervention phases. If distractibility and unintelligibility affected assessment performance, then we might conclude that our data represent low estimates of participants’ skills in both conditions. Therefore, we contend distractibility and unintelligibility do not threaten our conclusions.
Rapport may have affected baseline assessment performance had we not spent several days in the classroom getting to know the students. There was no sign of students being reluctant to talk to the examiner. In fact, students repeatedly asked for their individual turn to tell stories with the examiner. If initial rapport had been a problem, we would expect to see upward trends in baseline as children became more familiar with the examiner, no such trend is seen in the data.

Motivation is a potential limitation of our study. We speculate that the natural reinforcers for producing complete stories are likely attention and approval from adults and peers. Attention and approval were delivered during assessment sessions in all phases and during intervention sessions. Attention and approval took the form of praise about their general participation during assessment (e.g., “Thanks for telling your best story today.”) and during intervention, specific praise was delivered to students for producing their part or complete story (e.g., “Great job telling the story about Hannah. You even remembered to tell how she felt.”). However, we could not assume that these consequences would be sufficient to motivate strong effort on our tasks. Therefore, we supplemented attention with the strongest allowable rewards to increase the likelihood of children producing stories for assessment (e.g., marker stamps) and participating in the intervention (e.g., stickers and beads). Aside from our efforts to maintain participation and shape student responses during intervention, we did not conduct reinforcement assessments or monitor this aspect of the intervention.

All of our participants asked for their turns and were eager for their individual time with the examiner. Once in the assessment session, however, participants may not have always produced the best story within their capability. This is evident in the
variability of narrative performance. Most participants showed moderate levels of variability with four participants stabilizing performance after several sessions of intervention. As we discussed above, there is strong circumstantial evidence that Aimee did not always tell her best story. She displayed the most variable performances with the largest range of scores in baseline and intervention conditions. Given that our procedures permitted the delivery of rewards (e.g., marker stamp) to all participants regardless of what they produced, it is possible that we inadvertently reinforced Aimee’s low effort responses when she was capable of more complex narration.

Nicky’s pattern is somewhat different. Her progress was slow and moderate, not just variable. This raises the question of whether Nicky needed more frequent reinforcement, a different type of reinforcement, or a larger magnitude of reinforcement to make the same gains as other participants. It is possible that the effort required for Nicky to tell stories was too great and the reward too weak. Unfortunately, our procedures did not allow us to confirm whether she needed more intense instruction or more intense reinforcement. While the influence of consequences was not a focus of the current study and has not yet been investigated in the narrative intervention literature, Nicky and Aimee’s data imply that motivation may be an important component to examine.

Another notable limitation of this study is the subjectivity of the scoring. In general, the task of accurately rating preschool narratives is extremely challenging. Even with the structure provided by the INC, we found a great deal of scorer judgment was required especially when stories were fragmented and disorganized. For that reason, we employed a double checking system and modified the INC to suit our needs. Even so, we
found lower levels of interscorer agreement on stories that received lower INC scores. In other words, the less complete the story, the more difficult it was to score. One reason for selecting narrative retells as the primary dependent variable was to have a model available for comparison during scoring. This was helpful, but it did not eliminate the need for judgment. Nonetheless, our scoring agreement was 91%, which is sufficient to suggest we generally achieved accurate scoring. Considering this level of error for scoring stories, the effect for participants who showed minor level changes (Nicky and Lola) is somewhat less convincing. However, in both cases, the patterns of performance are based on multiple data points, which reduce the likelihood of spurious conclusions based on error in scoring.

We were unable to measure Melanie’s narrative abilities after the 2-week maintenance phase, which we consider a minor limitation. Her family left town shortly after the post-intervention assessments. Although it would have been better to have maintenance data for Melanie, we believe she would have sustained her performance. Given her extremely flat baseline pattern, rapid growth during intervention, and the length of the intervention phase, we would not expect a significant drop after a short break. Overall, a longer maintenance phase would have also been better than the brief two-week break. The study design involved four legs running concurrently. As a result, the last groups experienced lengthy baseline phases, which reduced the time available for a “no practice” interval prior to maintenance assessment.
Personal Experience Generation Skills

Given an opportunity, most preschoolers talk extensively about themselves, a recent activity, or something they have seen. Preschool-aged children produce a great deal more personal stories than any other type of story (Preece, 1987). Personal experience narration has practical importance. For example, the ability to tell stories about real experiences provides an avenue for young children to practice oral language skills, accurately recount a sequence of events to adults, and to connect socially with peers (Johnston, 2008). In comparison to retell formats, personal stories are child-initiated and closely reflect a child’s spontaneous oral language abilities (Hughes et al., 1997; McCabe & Rollins, 1994; Preece, 1987). While personal stories may have fewer obvious associations with literacy development than retelling fictional stories, young children have more opportunities to practice narration through this genre. Improved personal narration has more immediate benefits to children such as social engagement and approval from adults (Boudreau, 2008; Johnston, 2008).

With an *a priori* assumption that children must call on different sets of skills to retell modeled stories and generate personal stories we addressed both aspects of narration. We include several features in the intervention to promote changes in participants’ personal experience generations. First, we explicitly taught the story grammar elements of character, problem, internal response, action, and consequence, which are common to both genres (i.e., realistic fictional stories used in retells and participants’ personal experience generations). Second, we developed the stories to reflect preschoolers’ experiences so they would map onto what is familiar to children.
Given that the content of stories were similar, we anticipated that participants would use the story grammar for both genres. The third reason we expected growth in personal experience story generations was that we taught it directly in our narrative intervention. In the last two steps of the daily instructional sequence, students practiced telling their own story while the instructor provided support. During intervention, the instructors were able to provide enough support to guarantee that students generated a story.

In research, however, assessing story generation skills poses serious challenges. During assessments, we could not compel participants to generate personal stories and they were much less likely to tell a personal story than retell a modeled one. It is difficult to distinguish participants’ story generation skill from motivation or content availability (i.e., they may not have had any experience in a given area). Despite the conversation/play elicitation procedures and repeated invitations to share personal stories, we could not guarantee that participants’ would a) have a story to tell and b) want to tell their story. Interestingly, participants produced more probed personal story generations as intervention continued, which may indicate that comfort or motivation were contributing variables. Because content and motivation confound personal experience story generations, we are less sure that we captured true skills in our measures. Limitations mentioned earlier regarding the difficulty of scoring retell narratives apply to personal generations as well. In fact, the subjectivity is even greater because there is no model story to use as a comparison. Due to the challenges of eliciting personal generations, we were unable to establish a firm causal relation between narrative intervention and personal narrative generation skills. Thus, these results should interpreted as suggestive, but not conclusive.
While not definitive, the results for personal generations are favorable. Six of the seven participants generated personal experience stories at post-intervention that were considerably more complete than pre-intervention personal stories. Jenny, Melanie, and Lola had a sufficient number of probed generations that ascended over time to support the notion that narrative intervention improved performance on personal experience generations. For example, approximately every third daily assessment session during intervention, Jenny produced a personal story. These data variably ascend and show roughly the same gains as observed for her narrative retells. Although Melanie did not produce probed generations until after several intervention sessions, her scores gradually improved. Eventually, Melanie’s personal generation narratives received higher scores than her retell narratives. Lola also did not produce probed generations until after several intervention sessions; nonetheless, a clear ascending pattern is observed once she began producing personal stories. Despite the missing data that preclude strong conclusions, these data patterns point to enhanced personal experience story generation skills as a result of narrative intervention. Even small improvements in narrative generations are important for these children, who may now explain their problem or what action they took to solve the problem more clearly.

**General Language Outcomes**

Several language researchers have investigated the effect of narrative intervention on language measures that are not unique to narration including number of communication units (NCU), mean length of utterance (MLU), number of different words (NDW), and total number of words (TNW). As a basis for making comparisons
with previous work, we included these general language measures as secondary measures of improvement in narrative skill. As expected, most of our participants showed growth on most of these measures. Even though we did not directly target NCU, MLU, NDW, and TNW, these outcomes improved. There are practical reasons to improve these aspects of language. For example, children who produce longer narrations with complex sentences and a variety of words can potentially attract peer attention for longer intervals, entertain others with expressive additions, convey crucial information to an adult, and in general, receive more practice using specific language skills.

Not unlike those mentioned above, we experienced some challenges in scoring general language measures (i.e., NCU, MLU, NDW, and TNW) from preschoolers' narratives. Stories were scored using SALT (Miller & Chapman, 2004), but prior to running the analyses a research assistant transcribed each story. As part of the transcription conventions required for SALT, she broke the stories into communication units (C-unit). A C-unit is an independent clause and its modifiers (Hughes et al., 1997). A complete C-unit includes a subject and verb. Often our participants' narratives were so unorganized and fragmented that they did not contain clear units with subjects and verbs, especially before intervention. It was very difficult to know how to break apart the narrative if a participant provided a string of nouns or verbs without subjects. If the research assistant transcribed several fragmented words as one C-unit, the mean length of utterance (MLU) might have been artificially inflated. In contrast, if she separated each word or fragment into an individual C-unit, the number of C-units (NCU) might have been inflated. Since the SALT scoring is based in part on this judgment, general language improvements should be interpreted as estimates. Nonetheless, it is reasonably safe to
conclude that stories with more story grammar elements are likely to be longer and contain more different words than stories with fewer story grammar elements.

**Intervention Intensity and Number of Sessions to Mastery**

In reviewing the literature on narrative interventions for preschoolers, the number of sessions provided and delivery arrangements varied considerably across studies. In addition, since most studies reported only pretest and posttest scores it is impossible to answer questions about the level of intensity and number of sessions necessary to produce the desired effect. These questions are intended to optimize the effectiveness and efficiency of narrative interventions. In the current study, we operationalized mastery in three different but related ways and counted the number of intervention sessions necessary to reach those levels. Our least stringent definition aligns with Hayward and Schneider’s (2000) measure of episodes. They reported that approximately half of their participants (6 of 13) produced at least one complete episode (i.e., problem, action, and consequence) within eight sessions. In the current study, all of our participants produced a complete episode within 11 sessions. Of the three definitions for mastery, the inclusion of all five prompted elements was the most stringent; even so, all participants except for one reached that criterion on at least one narrative retell within 9 sessions. Nicky received 12 intervention sessions but never included all five prompted main story grammar elements in a single story. Although the number of sessions we provided is similar to Hayward and Schneider, there are differences in intervention intensity. Hayward and Schneider delivered narrative intervention in smaller groups (2-3 children) and for longer sessions (20 minutes). In other words, in the current study we were able to demonstrate
comparable effects with more students in less time. However, individual differences in entry skills and learning rates are pronounced. Lola produced stories with all five main story grammar elements before instruction began and Nicky never produced a story with all five elements, even after 12 sessions of instruction. This suggests that the optimal instruction may need to include variable levels of intensity and/or number of sessions depending on students’ performance.

**Prompted Versus Unprompted Elements**

Using the grid display, we scrutinized the elements contained in each narration. This allowed for a closer examination of individual elements and uncovered interesting patterns and questions for future research. During intervention, the instructors ensured that each student included the character, problem, internal response, action, and consequence in each retell or personal experience generation. If students failed to mention one of the main elements, the instructor prompted its inclusion directly. Other elements (i.e., setting, formulaic marker, causal marker, temporal marker, and dialogue) were never prompted directly; instead they were only modeled by the instructor during intervention. We expected participants would include all five elements after receiving direct teaching on them. This was true for all prompted elements except internal response. With the exception of Lola, participants frequently omitted the internal response, which we found surprising. We concluded that our instruction was insufficient to teach our group of participants to include an internal response. There are several potential explanations for this finding. First, however, we wanted to rule out sampling error. Post-intervention data were based on the last three intervention retell stories and we
wanted to examine previous stories to determine whether this sample was uncharacteristic. This was not the case. Internal response was included very infrequently throughout the intervention phase. We consider the data from the last three intervention retells to accurately reflect the overall inclusion of specific elements.

One explanation for the lack of improvement observed for internal response is that it is one of the last of the main components to appear developmentally (Hughes et al., 1997). During screening, we ensured all participants were able to label pictures depicting happy, sad, and mad. However, during retell assessments, even after direct teaching, only Lola consistently included the characters’ feelings. This suggests labeling an emotion is different than using it in a story. Lola was a high performer in our study (i.e., average Bus Story score and high INC scores). The fact that she was the only participant who consistently included the internal response seems to support the idea that using internal responses in stories appears later developmentally. That is, Lola’s language repertoire was more sophisticated than those of the other participants, and this general language sophistication may account for her learning to include internal responses. Of course, this is only speculative and unfortunately, the current normative data on preschoolers’ narrative skills does not allow for definitive conclusions about the developmental sequence of specific elements.

Another possible reason participants did not include internal response is that internal response may not be as salient as other elements or not causally related to other components in the story. For example, if a child says, “John is sad,” it does not provide any information about the appropriate action or consequence. Further, without an identified problem, the listener cannot tell why John is sad. However if the child gives an
initiating event such as, "John cut his leg," the listener can infer that John is sad and the storyteller and listener have information about what action might solve the problem. Participants may have learned that the character's feeling was less helpful in terms of relating components and providing the information about what comes next. During the intervention, we did not prompt the use of because although it frequently connected the internal response to the problem. Had students practiced saying, "He was sad because he cut his leg," they may have included the internal response more frequently. In a way, the internal response stands alone and relates only to the problem. In contrast, completing the story with an action and consequence relies heavily on an initiating event. Inspection of participants' grids in Appendix D confirms that the problem, action, and consequence of the story were the most prominent elements. In general, once participants began including these three components, they continued to include them and regularly neglected the internal response.

Petersen (in press) found that children begin including some narrative elements more frequently without explicitly teaching. We explored this hypothesis by deliberately prompting some elements and modeling (but not prompting) others. By identifying which elements need prompting and which elements increase in frequency with modeling alone, interventionists can streamline their interventions. We found that temporal markers (e.g., then, when, and again), formulaic markers (e.g., one day and the end), and settings (e.g., outside, downstairs, or a restaurant) improved substantially without prompting during instruction. One clarification we inserted to the INC scoring rubric was that then could only count once per story. We found that young children used then in excess and we did not want to inflate their score for using then more than once. To receive an INC score of
2 for temporal markers, participants had to include two different temporal markers such as *then* and *after*. Even though *after* and *when* are next in the developmental sequence of temporal markers and were modeled in stories, participants used them much less frequently than *then*. We believe that *then* was already secured in our participants’ repertoire and that modeling was sufficient to bring it to use within retells. However, *after* and *when* were less secure and as a result modeling produced only a marginal increase. Interestingly, Lola and Aimee began including temporal markers that were not modeled in intervention or in the assessment stories (e.g., once and again). We presume they had a broader range of vocabulary to insert into places where temporal markers typically go.

Formulaic markers follow a similar pattern. Formulaic markers add a dimension of expression preferred by listeners and our participants quickly began to include them without prompting. Participants increased the number of openings and closings in their stories, but many of them likely had the specific words in their repertoires prior to instruction. Participants used a formulaic marker but they did not necessarily use the exact phrase that was modeled in the story. Because we rarely used the same formulaic marker (e.g., “The other day…” ) to open more than one or two pre-scripted stories, we believe participants did not learn the specific phrases; but rather they learned a template or frame for opening a story. Perhaps, the intervention and assessment stories provided a “formula” for introducing and concluding stories.

Participants’ inclusion of the setting was likely a result of its association with the character in all of the stories. When we introduced the character in modeled stories, a setting accompanied it. For instance, “Vicky was playing in the backyard.” While we did
not prompt students to say the entire statement – we only made sure they said the
character’s name, students repeated the setting during intervention almost as much as the
character’s name. Variations of story grammar elements include character as part of the
setting rather than character existing as its own category (Stein & Glenn, 1979).

The most interesting result regarding unprompted elements was that the use of
causal markers and dialogue were not significantly impacted by modeling alone. These
elements were less likely to be fluent in participants’ repertoires. In addition, causal
markers and dialogue enhance the complexity of narration but are not essential for
conveying the gist of the story. For example, the use of because is not critical to present a
causal relation; nor is specific dialogue the only way to represent that someone said
something. In the story, we modeled something like, “John was sad because he cut his
knee.” However, children could imply causality by saying, “John cut his knee and was
sad.” In this example, the participant would not have earned a point for causal marker
despite relating the two elements. Similarly, a participant could say, “John asked his mom
for a Band-Aid” instead of using dialogue as in the model, “John said to his mom, ‘I need
a Band-Aid.’” Again, we did not award points unless a direct quote was included. Four of
our participants never used the word because and those who used dialogue in baseline
stories used it during intervention stories at the same rate. We speculate that participants
who already had specific words in their repertoires (e.g., then, one day, and because),
regardless of category (e.g., temporal, formulaic, or causal markers), benefitted from
modeling alone. Participants who did not have these words in their repertoire needed
explicit teaching in using these narrative features.
Social Validity

We addressed two aspects of social validity in this study. First, we asked Head Start teachers about the importance, appropriateness, and feasibility of narrative intervention. All teachers agreed that narrative skills are important, the activities were enjoyable and appropriate for the students, and that procedures could be adapted for use within the classroom. In addition, all four teachers said they were interested in implementing narrative intervention in their classrooms. One of the teachers approached the primary investigator several times throughout the study to ask how she could enroll her students. We believe their positive appraisals speak to the nature of the intervention in terms of size of group, use of visual materials and games, and embedded storytelling. In some ways, narrative intervention does not look or feel like direct teaching. It can be presented in a very natural manner, which is appealing to early childhood education providers. The fact that only one student refused to participate (and that student declined only once) suggests the activities were fun and instructors’ attention and mild rewards (i.e., stickers and beads) were sufficient to sustain participation.

As a second measure of social validity, we assessed the degree to which teachers’ ratings of stories corresponded with INC scores. Essentially, we tested how INC scoring of story structure compared to a broader construct of “a good story.” We found that teachers’ ideas of a good story agreed with the INC scoring system 71% of the time. While we obtained only moderate agreement, there are several factors that account for at least part of the disagreements. First, because median scores were selected from baseline and the last three intervention retells, Nicky’s stories sampled were not drastically
different. She made the least gain of all of the participants, and three teachers identified Nicky’s baseline story as the better one. Second, we did not provide any information about what teachers should consider to judge “a good story.” It is possible that teachers selected the better story based on grammar, syntax, length, or vocabulary use. While these language measures correlate with story grammar, they are different. This is evident in the rating of Ellie’s baseline and intervention stories. Three teachers identified Ellie’s baseline story as the better story. Ellie’s baseline story was, “I wanted a other bike. But Santa didn’t give me other one.” and her intervention story was, “Yesterday, it was time to go to school. And then he didn’t know the kids and the teachers. And then she asked if you want if they want to play. And then they all played. They played together.” Her intervention story includes several more structural elements and is considerably longer than her baseline story. However, her baseline story identifies a character by name and has fewer fragments. Unfortunately, we cannot determine which aspects teachers used form their judgment. Without Nicky and Ellie’s stories included in agreement, the teachers ratings agreed with INC scoring 90% of the time. In general, teachers confirmed that participants’ stories were better after intervention than before.

Implications for Practice

Considered in conjunction with previous research findings, this study confirms that narrative intervention is an effective strategy for enhancing preschoolers’ narrative skills. Evidence of its effectiveness with typically developing yet at-risk children is particularly strong. Researchers have implemented some version of narrative intervention with young children with low SES (Peterson et al., 1999), disadvantaged children
(Karweit, 1989), children who attend daycare (McKeough & Sanderson, 1996) or Head Start programs (McGregor, 2000), and preschoolers with mild language delays (Speaker et al., 2004). In each of these studies, researchers included participants who were similar to the current group and produced favorable results. Thus, we are confident that at-risk preschoolers with average to slightly below average language abilities benefit from narrative intervention strategies. Findings may also generalize to children with moderate to severe language impairments. Hayward and Schneider’s (2000) participant group consisted of slightly older children (4.8-6.4 years old) with moderate to severe language impairments. Their version of narrative intervention overlaps considerably with the current procedures in terms of arrangement (e.g., small groups and number of sessions provided), materials (e.g., story grammar icons), and activities (e.g., retelling). Like ours, Hayward and Schneider included single subject design features and pre-intervention and post-intervention measures. Of the collection of preschool narrative intervention studies, their investigation produced the most convincing effects. Given these similarities, it is reasonable to conclude that the narrative intervention we have implemented would benefit children with moderate to severe language impairments as well. Although the current study is the first to investigate narrative intervention with bilingual preschoolers and those whose first language is not English, we may also extend the findings to these children. Nonetheless, we included only one bilingual preschooler and one ELL so the effect has not been sufficiently replicated.

An important implication for practitioners is the relatively efficient manner of implementation and the relatively modest intervention dosage necessary to produce the desired effect. Often, classroom teachers and speech language therapists have too many
students and lack resources to provide adequate instruction to all of them. As mentioned earlier, in the current study we demonstrated a sizeable improvement using only nine short group intervention sessions (about 12 minutes). Practitioners who provide narrative intervention to children in groups as opposed to individually conserve financial resources and may benefit more children. Effective instruction for more children with less money is an important educational outcome.

In addition to economic advantages, the arrangement of intervention sessions in our study has implications for service delivery. In the current study, a speech-language pathologist and an early childhood special educator delivered narrative instruction to the entire class, but in small groups near the classroom. Within school settings, speech-language pathologists increasingly provide language services within the classroom. Classroom-based service delivery is especially popular in inclusive preschool settings. Wilcox, Kouri, and Caswell (1991) compared classroom-based intervention for preschoolers to individual language intervention. They found that classroom-based intervention was associated with superior generalization of language targets. When teachers and speech-language interventionists collaborate or co-deliver language interventions in the classroom, students' language skills appear to improve more than when teachers and speech-language pathologists provide services independently (Throneburg, Calvert, Sturm, Paramboukas, & Paul, 2000). Even though narrative intervention has historically been implemented as a speech-language intervention apart from of inclusive classrooms, more children may benefit if classroom teachers deliver narrative intervention or if speech-language pathologists team with teachers. We asked four Head Start teachers if they thought the procedures could be adapted for use in a
classroom and whether they were interested in trying it in their classroom. All of the teachers responded positively. If preparing children for reading instruction and enhancing important oral language skills are a priority, then classroom-based and teacher delivered narrative intervention seem to be excellent options.

In this study, we prompted only the main story grammar components, but there are several other features of narratives that can also be targeted. Specific relational elements (e.g., causal and temporal markers), supplemental narrative components (e.g., dialogue and formulaic markers), modifiers (e.g., prepositions and adjectives), vocabulary, and morphosyntax (e.g., pronouns, subject verb agreement and past tense) are among the many aspects of language that practitioners can easily address using narrative intervention. In fact, skilled interventionists can address different targets for different children within the same session. In the context of stories, practitioners can prompt preselected and individualized targets according to the specific needs of the children in the group. Even though our research did not permit us to differentiate language targets for individual participants, we recognized how easily the instructors could have prompted one student to use the correct pronoun, another to say, “When she came down the stairs…” and another student to increase the length of his or her utterance. There is evidence to suggest that Adam, the ELL, acquired new vocabulary words. For example, in one of our intervention stories, we repeat the word pepperoni several times. Adam initially called pepperoni “circle things” and looked to the instructor for help. By the time Adam took his individual turn, he was able to use the word pepperoni without hesitation. While differentiating within groups is somewhat challenging, narrative
intervention lends itself nicely to differentiated language instruction because of the broad range targets available.

No Child Left Behind emphasized the importance of prevention and early detection of reading difficulties. The American Speech-Language Hearing Association (ASHA) and the Council for Exceptional Children (CEC) confirm the importance of prevention and recommend practitioners begin identifying struggling learners and intervening to prevent reading difficulties as early as possible (Ehren, Montgomery, Rudebusch, & Whitmire, 2006; CEC, 2007). Ideally, prevention occurs in preschool when children acquire language skills that provide the basis for later reading development (Coleman, Roth, & West, 2009; Justice, 2006).

Response to Intervention (RTI) is a prevention model that involves supplying varying levels of intervention intensity to match students’ instructional needs. Increasing intensity is achieved in a number of ways: (a) increasing teacher-directed instruction, (b) instructing more frequently, (c) lengthening the duration of instruction, (d) creating smaller, more homogenous groups, and (e) relying on more expert instructors (Fuchs & Fuchs, 2006). This investigation yielded a number of findings that imply narrative intervention is well suited for use within a RTI model. We propose that narrative intervention can be delivered with varying intensities and that not all children need the same intensity of instruction. Evidenced by increasing baseline trends, Lola and Aimee benefited from mere exposure and practice retelling. In contrast, Nicky never produced all five main story grammar elements in retell or personal narratives despite 12 sessions of intervention. Participants whose attendance was consistent made more rapid gains suggesting frequency might be an important variable of intensity. Although the relatively
brief session duration (approximately 12 minutes) is an attractive aspect of the current procedures, interventionists can easily lengthen intervention sessions to provide more practice to struggling learners. The form of narrative intervention used in this study was designed to be a middle tier intervention. Less intensive versions could be designed for Tier I or primary prevention use and more intensive versions could be designed for children with highly specialized needs. The size of the groups places the current intervention in a tier between classroom instruction and individual intervention. Likewise, prompting supplemental (e.g., setting and dialogue) and relational elements (e.g., causal and temporal markers) in addition to the basic narrative elements creates a more intense intervention. Finally, our study employed expert instructors, but all of the Head Start teachers were optimistic that they would be able to implement the procedures in their classes. Based on our high treatment fidelity (98%), we conclude that the procedures are not overly difficult to implement. Teachers with less expertise in specific linguistic features could deliver a less intensive classroom-based intervention. For students who require individual instruction targeting technical aspects of language, a speech-language pathologist may be the appropriate interventionist.

**Implications for Research and Future Directions**

The current investigation includes a number of methodological strengths over previous research. For one, a multiple baseline design allowed for sufficient internal validity in our study. Much of the earlier preschool narrative intervention research employed pre/post-test designs without control groups or simple AB single subject designs that do not adequately rule out threats to internal validity.
Second, the researcher-developed assessment stories eliminated the possibility that participants had prior exposure to the particular story. In previous investigations of narrative intervention, researchers used the same stories for assessment as they used during training (Hayward & Schneider, 2000; McGregor, 2000). In our retell assessments, the examiner modeled a different story each time. In addition, she randomly selected stories so the order differed for each participant. Another favorable aspect of these stories was that we developed them using a template. We went to great lengths to ensure that story structure, syntax, content, and vocabulary were developmentally appropriate and stable across stories. However, we have not verified this through a statistical validation process. Well-designed progress monitoring tools undergo several iterations during development and validation and we believe these stories warrant such a process.

To improve the potential of standardized assessment stories, we recommend creating scoring procedures that align with a specific set of stories. Although the INC is substantially more objective and sensitive than many methods of evaluating narratives, it is designed to be used with any fictional story of school-aged children, not this particular set of stories. Nonetheless, it serves as an excellent model for scoring systems in terms of completeness, sensitivity for progress monitoring, weight for complexity, and versatility. Researchers should develop and validate scoring systems designed for standardized stories. Detailed scoring rubrics with elaborated examples that map onto a set of stories will help researchers and practitioners produce more valid assessment of narrative skills.

In the current study, daily assessment sessions took place prior to intervention sessions, which means we assessed the influence of narrative intervention on participants'
retell skills at least 24 hours after their previous session. This is another methodological strength. Many of the previous researchers who used repeated measures in a single subject design assessed skills immediately following intervention sessions (Petersen et al., 2009). Some researchers did not report when assessment took place in relation to the intervention (e.g., McGregor, 2000; Tyler & Sandoval, 1994). Results from assessments that were temporally removed from recent practice are stronger demonstrations of important effects. Given that the current participants demonstrated sizable gains when assessed 24 hours after opportunities for practice, the current results are indeed robust. These results suggest that narrative intervention researchers need not be timid about using a conservative method of evaluation.

Finally, the current investigation offers a detailed description of procedures and evidence of treatment fidelity. In reviewing the literature, we found it difficult to understand what previous researchers did. Descriptions of independent variables were extremely brief and/or disorganized (e.g., Karweit, 1989; McKeough & Sanderson, 1996; Speaker et al., 2004) and fidelity of treatment was never assessed. In our study, we documented our intervention sessions using a digital recording device and reported estimates of level and frequency of prompts delivered during sessions. We have attempted to describe our procedures so that future researchers will be able to replicate them and we provide a measure of treatment fidelity. These features of our study allow for confidence in the results and for replication.

We agree with others (McCabe & Rollins, 1994; Peterson & McCabe, 1983; Peterson et al., 1999) that personal narration is important and immediately useful for young children. Instead of using personal generation as a measure of generalization, we
chose to teach and assess it as directly as possible in our intervention. While Peterson et al. taught mothers of at-risk preschoolers to encourage their children’s personal narration at home, ours is the first study to teach this genre in an instructional setting. We consider this aspect of our study to be a significant contribution to the preschool narrative literature and at the same time, we recognize that our measurement of this genre was a methodological weakness of our study. Because of this limitation, the contribution is not complete. As mentioned earlier, the nature of assessing personal generations poses several challenges. Although we gave participants an opportunity to produce a personal story after every retell, we could not guarantee they would. Without consistent repeated measures in a multiple baseline design, we were unable to establish convincing experimental control of personal generations. In the conversation/play context, participants offered at least one personal story; but the time requirement for that procedure precludes it from being repeated every day. Peterson and colleagues collected personal narratives using the conversation-elicitation procedure only three times. Perhaps, a control group design with pre- and post-intervention measures using the conversation-elicitation procedure would be a better option for assessing a personal genre of narratives. If teaching personal experience generations is important, and we contend that it is, future research is needed to address the limitations that accompany their measurement.

We also examined the number of sessions necessary for participants to reach a mastery criterion on story retells and we scrutinized each narrative for included elements. This was the first preschool intervention study to analyze the outcomes of narrative intervention with this level of detail. We found that participants did not include the
internal response story grammar element even though it was explicitly taught. This is a curious finding and further research should address this systematically. In addition, our results suggest that teaching children to produce basic or complete episodes (i.e., problem, action, and consequence) is relatively easy, but teaching them to produce more complex episodes (e.g., including all five story grammar elements) or to use specific linguistic features not already in the repertoire (e.g., causal markers and dialogue) requires more explicit instruction. Because the numbers of sessions and mastery criteria have economic and social importance, we believe that these aspects warrant further examination through experimental study. Future researchers may wish to confirm our estimates of number of sessions necessary to produce one complete episode or to ask how many sessions are necessary for preschoolers to consistently produce complete episodes. Potentially, dosage depends on children’s language skills prior to intervention. Future research could address this systematically. The effect of prompting supplemental and relational elements in addition to main story grammar elements is unknown. We speculated that those children who already had certain words in their repertoire were able to apply them in their story telling after modeling alone; however, this has not been examined experimentally. In addition, researchers might examine the intensity of intervention necessary for children to include the internal response element.

Narrative intervention involves a complex set of activities, materials, prompts, and student responses. In the current investigation, we did not systematically assess each component’s contributions to the outcome; instead, we evaluated a package of intervention activities. We designed several features of the intervention to increase and maintain preschoolers’ attention and active participation. Given that we involved small
groups of young children, it was critical that we ensured active participation. We developed story games for the primary purpose of keeping children engaged, but they also served as a listening comprehension activity. As students listened to their peers tell the story, they identified the story elements by responding using the sticks, bingo cards, cubes, or gestures. Pictures, story grammar icons, and verbal prompting are commonly included in narrative intervention packages, but we cannot be sure they are necessary. Two participants benefited from simply practicing retells (e.g., Lola and Aimee improved in baseline). This suggests that actively producing narratives may be sufficient for some children. In any case, we have not conducted a component analysis; but we believe unpacking the narrative intervention is a worthy endeavor.

One fascinating new development in terms of intervention research is the extension of multi-tiered models into preschool (Coleman, Roth, & West, 2009). While we speculated above about the potential of narrative intervention being used at different levels of intensity within a tiered intervention system, future research should examine this systematically. As a first step, narrative intervention could be adapted for use with a large group in a classroom and evaluated experimentally. Once procedures at each tier are developed and validated, the utility of narrative intervention and narrative-based progress monitoring can be assessed within an RTI prevention model.

One of the main premises in support of the importance of narrative intervention is the relation between narrative abilities and reading comprehension. Even though the skills of recounting personal experiences and retelling stories are important preschool objectives, their long-term importance may be even greater. Throughout the literature on narrative abilities, authors state this argument logically, as we have. However, the notion
that narrative intervention improves narrative skills that in turn improve reading comprehension has not been demonstrated empirically. Considering reading failure is an important issue facing our society, we suggest that an experimental analysis of this link is imperative. The current study confirms the relation between narrative intervention and proximal outcomes (e.g., narrative retelling); however it is plausible that narrative intervention will reach distal outcomes (e.g., reading comprehension) as well.

Summary and Conclusions

It is well understood that language forms the basis for literacy development and that narrative retelling, in particular, is a key preschool literacy task. In this study, we improved preschoolers' narrative retelling skills by providing systematic narrative instruction in small groups. Considered together with previous preschool research, we conclude that narrative intervention of this sort is an effective strategy for improving at-risk preschoolers' narrative retelling skills. Aside from being effective, narrative intervention appears to be an economical, efficient, and versatile approach to improving language skills. In general, narrative improvements occur shortly after the onset of instruction. Teachers and highly trained language interventionists can deliver narrative intervention in a variety of arrangements and settings. Reasonable extensions from the current procedures involve using narrative intervention to teach a spectrum of language features and adjusting the levels of intensity to accommodate individual student needs. These aspects suggest that narrative intervention may provide a suitable context for achieving differentiated instruction for groups of students who have diverse instructional needs. Moreover, the flexibility of narrative intervention in terms of arrangements,
intensity, and instructor qualifications suggests its utility within a multi-tiered prevention model such as Response to Intervention (RTI). Perhaps, narrative intervention can help prevent significant language and/or reading problems. While the current study confirms that this type of narrative intervention improves preschoolers' retell performance, narrative intervention may have a wide range of potential, and important, applications.

The current study offers several contributions to the literature on preschool narrative interventions. Using a multiple baseline design, we provided a strong demonstration of experimental control across five participants at three points in time. Because we employed daily measurements, we were able to examine the number of sessions necessary for participants to reach mastery – something that previous researchers have not attempted. In addition, repeated measures using the researcher-developed assessment stories strengthen our results. Our leveled stories eliminated the possibility of familiarity or difficulty confounding the assessment data. Furthermore, the inclusion of treatment fidelity and maintenance data contribute to the body of preschool narrative intervention literature in terms of quality design features. High treatment fidelity helps future researchers replicate intervention procedures and reduces alternate explanations for the observed effect. Maintenance of intervention effects implies meaningful and lasting effects (i.e., socially valid outcomes), rather than short-lived improvements that may not lead to functional language improvements for children. Because applied researchers should be committed to (a) producing meaningful and lasting narrative improvements and (b) ruling out other plausible explanations for that effect, these aspects of our study can serve as models for future research in this area.
Another important contribution involves the direct teaching of a personal experience genre. Personal stories are immediately useful for preschoolers because they help children connect socially, convey crucial information to adults, and practice oral language skills. While many agree that personal experience narration is important for preschoolers, few have taught it systematically. Our data show that structured narrative intervention holds promise for addressing this genre. Even though there are methodological challenges to assessing personal stories, this study represents a step in the direction of directly teaching and frequently assessing this important genre. Future preschool research can build upon our findings and work to overcome the methodological challenges we encountered.
REFERENCES


Evidence of a relation between early narrative and later mathematical ability. *First Language*, 24, 149-183.


APPENDICES
Appendix A

Target Participant Selection Worksheet
Target Participant Selection Worksheet

Student’s Name ___________________________  ID # __________________

Is this student…  ELL  DD  Neither

The Bus Story Score

INC Score – Personal Experience Story

Number of Elements – Personal Experience Story

Single Picture Screening: Uses emotion word?  Yes  No

Is this student generally …  compliant or noncompliant

Are attention and mild rewards effective motivators?  Yes  No

Is this student frequently absent or ill?  Yes  No
Appendix B

Elicitation Fidelity Checklist
Elicitation Fidelity Checklist

Examiner ___________________  Child ID# ___________________  Date ___________________

Observer ___________________  Percent Correct ____________

Directions: Place a + next to the steps that were completed correctly and a – next the steps that were not completed correctly. If steps were not completed correctly, or if there were questionable practices, describe them immediately below the most relevant checklist item. Close paraphrase of instructions to students is acceptable – but record any paraphrases that might be questionable.

RETELL

_____ Says “I’m going to tell you a story. Listen carefully because I’m going to ask you to tell the same story to this puppet. Ready?”

_____ Reads the story word for word using a slow to moderate pace and normal inflection.

_____ Says, “Now you tell that story to the puppet. Remember, he’s never heard it before.”

_____ Uses only neutral comments.

_____ Does not prompt, model, or restate.

_____ Asks whether child is finished at end.

GENERATION PROBE

_____ Says, “Has something like that ever happened to you?”

_____ Uses only neutral comments.

_____ Does not prompt, model, or restate.

_____ Asks whether child is finished at end.

GENERATION PRE-, POST-, AND FOLLOW-UP

_____ Tells the stories in first person.

_____ Says, “Has something like that ever happened to you?”

_____ Uses only neutral comments.

_____ Does not prompt, model, or restate.

_____ Asks whether child is finished at end.
Appendix C

Index of Narrative Complexity Scoring Rubric – Modified
Index of Narrative Complexity Scoring Rubric-Modified

<table>
<thead>
<tr>
<th>Narrative Element</th>
<th>0 Points</th>
<th>1 Points</th>
<th>2 Points</th>
<th>3 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character</td>
<td>No main character is included, or only ambiguous pronouns are used.</td>
<td>Includes at least one main character with non-specific labels only.</td>
<td>Includes one main character with a specific name for the character.</td>
<td>Includes more than one main character with specific names.</td>
</tr>
<tr>
<td>A character is any reference to the subject of a clause in a narrative.</td>
<td>Note: Only code each character one time.</td>
<td>Examples</td>
<td>Examples</td>
<td></td>
</tr>
<tr>
<td>a) They were walking.</td>
<td>a) &quot;Once there was a boy named Charles.&quot;</td>
<td>Examples</td>
<td>Examples</td>
<td></td>
</tr>
<tr>
<td>b) He was walking.</td>
<td>a) &quot;Once there was a boy.&quot;</td>
<td>a) &quot;Once there was a boy named Charles and a girl named Mary.&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>No reference to a specific or general place.</th>
<th>Includes reference to a general place or time.</th>
<th>One or more references to specific places or times.</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A setting is any reference to a place or time in a narrative.</td>
<td>Examples</td>
<td>Examples</td>
<td>Examples</td>
<td></td>
</tr>
<tr>
<td>a) &quot;The boy and the girl were walking.&quot;</td>
<td>a) &quot;The boy and the girl were outside.&quot;</td>
<td>a) &quot;Once there was a boy and a girl walking in central park.&quot;</td>
<td>a) They were walking at night.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) It was daytime.</td>
<td>b) They were walking at night.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) One day, they went to the park</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Initiating Event</th>
<th>An event or problem likely to elicit a response from a character is not stated.</th>
<th>Includes at least one stated event or problem that is likely to elicit a response from a character, but there is no response (by the main character) directly related to that event.</th>
<th>Includes at least one stated event or problem that elicits a response from the main character(s).</th>
<th>Two or more distinct stated events or problems that elicit a response from the main character(s).</th>
</tr>
</thead>
<tbody>
<tr>
<td>An initiating event is any reference to an event or problem that elicits a response from the character(s) in a narrative.</td>
<td>Examples</td>
<td>Examples</td>
<td>Examples</td>
<td>Examples</td>
</tr>
<tr>
<td>a) The girl looked at the boy. The boy and girl were walking in the park.</td>
<td>a) &quot;The girl was walking in a park and saw a spaceship land and she saw some aliens (IE). The girl started</td>
<td>a) &quot;The girl was walking in a park and saw a spaceship land and she saw some aliens (IE). The girl started&quot;</td>
<td>a) &quot;The girl was walking in a park and saw a spaceship land and she saw some aliens (IE). The girl started&quot;</td>
<td>a) &quot;The girl was walking in a park and saw a spaceship land and she saw some aliens (IE). The girl started&quot;</td>
</tr>
</tbody>
</table>
walking in a park and saw a spaceship land (event/problem) and she saw some aliens, and she saw a dog, and a table and...."

saw some aliens (IE-1). The girl started to run away (Action). But while she was running, her shoe got stuck in a hole (IE-2). She quickly knelt down and took off her shoe to get unstuck (Action). "
<table>
<thead>
<tr>
<th>Narrative Element</th>
<th>0 Points</th>
<th>1 Points</th>
<th>2 Points</th>
<th>3 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Response</td>
<td>No overt statement about a character's psychological state.</td>
<td>One overt statement about a character's psychological state not causally related to an event or problem.</td>
<td>One or more overt statements about a character's psychological state causally related to an event or problem.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Examples</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>a) &quot;The dog was sad, the girl was happy.&quot;</td>
<td>Examples</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>a) &quot;The aliens landed. Sara saw the ship and was terrified.&quot;</td>
</tr>
<tr>
<td>Plan</td>
<td>No overt statement is provided about the character's plan to act on or solve the event or problem.</td>
<td>One overt statement about how the character might solve the complication or problem.</td>
<td>Two overt statements about how the character might act on or solve the event(s) or problem(s).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Examples</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>a) &quot;The girl was very excited and she ran out to meet the aliens.&quot;</td>
<td>Examples</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>a) &quot;The girl was very excited and she told the boy that she wanted to go meet the aliens.&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b) &quot;The boy was&quot;</td>
</tr>
</tbody>
</table>

*An internal response is any reference to information about a character's psychological state including emotions, desires, feelings, or thoughts. Note: The “related” part of the 2 point scoring does not have to be marked with a “because.” It is sufficient if there is an initiating event that precedes or is mentioned with the IR. In this case the “related” is inferred because both the IE and the IR are in the story. Score a 1 point if there is no IE in the story. For example, if all they say is “He was sad.” and there is no problem mentioned before it or with it.

* A plan is any cognitive verb reference that is intended to act on or solving an initiating event.

* It must include a "cognitive verb" that
indicates a plan.

**Note:** The plan and the Action/Attempt can share the same clause (see 2 POINTS example b)

<table>
<thead>
<tr>
<th>Action/Attempt</th>
<th>No actions are taken by the main character(s),</th>
<th>Actions by main character are not directly related to the IE.</th>
<th>Attempts by main character are directly related to the IE.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actions are taken by the main characters but are not directly related to the IE.</strong></td>
<td>Examples</td>
<td>Examples</td>
<td>Examples</td>
</tr>
<tr>
<td>a) There is a girl. There is a boy. It is sunny.</td>
<td>a) &quot;The boy and the girl were walking in a park. b) &quot;They saw a boy alien waving.‖</td>
<td></td>
<td>a) &quot;The girl thought that it would be neat to go and meet the aliens so she got away from the boy and walked out on the grass.‖</td>
</tr>
</tbody>
</table>

**Note:** Identify "action verbs." Do not include "cognitive state" verbs (e.g., saw, thought, wanted, etc.)
<table>
<thead>
<tr>
<th>Narrative Element</th>
<th>0 Points</th>
<th>1 Points</th>
<th>2 Points</th>
<th>3 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complication</strong></td>
<td>No</td>
<td>One complication that prohibits a plan or action from being accomplished.</td>
<td>Two distinct complications that prohibit plans or actions from being accomplished.</td>
<td>Examples</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong></td>
<td><strong>Examples</strong></td>
<td><strong>Examples</strong></td>
<td><strong>Notes:</strong></td>
</tr>
<tr>
<td></td>
<td>A complication can also be a second initiating event. In this case code both a complication and initiating event.</td>
<td>a) <em>The spaceship landed</em>. The girl decided to get away from the aliens and started running from the spaceship. While she was running, a hole in her shoe stuck in a hole. She could not get away from the aliens.&quot;</td>
<td>&quot;The girl was walking in a park and saw a spaceship land and saw some aliens (IE-1). The girl started to run away (Action-1). But while she was running, her shoe stuck in a hole (Complication / IE-2). She quickly knelt down and took off her shoe to get unstuck (Action-2).&quot;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Consequence</strong></th>
<th>No consequence to the action/attempts is explicitly stated.</th>
<th>One consequence</th>
<th>Two consequences</th>
<th>Three or more consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Examples</strong></td>
<td><strong>Examples</strong></td>
<td><strong>Examples</strong></td>
<td><strong>Notes:</strong></td>
</tr>
<tr>
<td></td>
<td>a) &quot;She got away from the boy and walked out onto...&quot;</td>
<td>a) <em>The spaceship landed</em>. The aliens were happy to see her and cried when they flew away.</td>
<td>a) They told their parents the spaceship was in the park. But their parents didn’t believe them. When they took...</td>
<td></td>
</tr>
</tbody>
</table>
Note: A consequence for one episode can often be the IE for another.

Note: In order for a consequence to get a score of 2, there has to be 2 action-consequence chains. Two separate actions that lead to 2 separate consequences.

the grass. " The alien girl had a dress on.

their parents to the park the spaceship was gone.

b) The boy wanted a frog. He went to the woods to find one. He couldn’t find a frog.
<table>
<thead>
<tr>
<th>Narrative Element</th>
<th>0 Points</th>
<th>1 Points</th>
<th>2 Points</th>
<th>3 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Formulaic Markers</strong></td>
<td>No formulaic utterances</td>
<td>One formulaic utterance</td>
<td>Two or more formulaic utterances</td>
<td></td>
</tr>
<tr>
<td><em>A formulaic marker is any standard utterance used to mark the beginning or ending of a narrative.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>eg., The end, once, once upon a time, they lived happily ever after etc.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>eg., One day, last week, this morning, And that’s what happened, etc.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temporal Markers</strong></td>
<td>No temporal Markers</td>
<td>One temporal marker</td>
<td>Two or more temporal markers</td>
<td></td>
</tr>
<tr>
<td><em>eg., when, next, then, immediately, instantly, after, again, already, always, before, lately, now, once, presently, rarely, today, weekly, while</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Note: Exclude simple temporal conjunctions such as ‘then’ or ‘and then’.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Causal adverbial clauses

eg., because, since, so that, therefore, as a result, consequently, thus, hence etc.

Note: causal adverbs do not have to occur in concurrent sentences

No causal adverbial clauses

One causal adverbial clause

Examples

a) The aliens were not nice to the girl because they were scared.

Two or more causal adverbial clauses

Examples

a) The aliens were not nice to the girl because they were scared. Since they were mean, she ran away.

<table>
<thead>
<tr>
<th>Narrative Element</th>
<th>0 Points</th>
<th>1 Points</th>
<th>2 Points</th>
<th>3 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of dialogue</td>
<td>No dialogue</td>
<td>One character makes a comment or statement</td>
<td>Two or more characters engage in conversation</td>
<td></td>
</tr>
</tbody>
</table>

Knowledge of dialogue is registered by a comment or statement made by a character or by characters engaging in conversation.

Examples

a) He said "Ow"
b) He said "Don't come over here!"

Examples

a) He said "Oh look, there is an alien" and she said "Oh, lets go see them."
<table>
<thead>
<tr>
<th>Narrator Evaluations</th>
<th>No-narrator evaluations</th>
<th>One-narrator evaluation</th>
<th>Two-or-more narrator evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Examples</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) She ran up to say hello to the alien because she always wanted to meet one.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) He wanted to run from the aliens since they were his worst nightmare.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: For our purposes, we are eliminating this category.
Appendix D

Grid Analyses
Jenny

<table>
<thead>
<tr>
<th>Unprompted</th>
<th>Baseline</th>
<th>Narrative Intervention</th>
<th>Maint.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>G R R R</td>
<td>R R R R R R R R R R R R R</td>
<td>R R R G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>dialogue</td>
<td>temporal marker</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>causal marker</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>formulaic marker</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>setting</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>consequence</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>action</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>internal response</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>problem</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>character</td>
<td></td>
</tr>
</tbody>
</table>

| Pr 1 2 3 | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | Po M M |

Melanie

<table>
<thead>
<tr>
<th>Unprompted</th>
<th>Baseline</th>
<th>Narrative Intervention</th>
<th>Maint.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>G R R R</td>
<td>R R R R R R R R R R R R R</td>
<td>R R R G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>dialogue</td>
<td>temporal marker</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>causal marker</td>
<td></td>
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| Pr 1 2 3 | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 Po |

Note: Pr = Pre-intervention assessment; Po = Post-intervention assessment; M = Maintenance; G = Post generation; R = Retrieval.
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Appendix E

Narrative Intervention Fidelity Checklist
Narrative Intervention Fidelity Checklist

Instructor ___________________________ Group ____________ Date ____________
Observer ___________________________

Percent Completed Correctly _______

Model Story
____ Lays out 5 pictures
____ Tells the pre-scripted story
____ Briefly places icons near pictures

Group Retell
____ Leaves pictures on table
____ Allows selection of SG icon

Prompts appropriately
____ Each part of story retold
____ Each student puts icon w/ picture
____ Summarizes the story

Individual Generation 1
____ Leaves icons out
____ Selects pre-assigned student
____ "Has something like that ever happened to you?"

Prompts appropriately
____ Each part of story included
____ Plays story game
____ Summarizes the story

Individual Generation 2
____ Removes SG icons
____ Selects pre-assigned student
____ "Has something like that ever happened to you?"

Prompts appropriately
____ Each part of story retold
____ Plays story game
____ Summarizes the story

Scoring Codes
+ = completed step correctly
- = completed incorrectly or skipped
√ = student doesn’t need prompting
Λ = student asks for help
X = instructor produces the part/story
Narrative Intervention Fidelity Checklist Scoring Guidelines  
**Bolded Items**

**Prompts Appropriately**

- If student pauses and is unable to produce the next element, the instructor should wait 3-5 seconds before providing help. This should be marked with a +.
- If the student skips an element and moves quickly to the next element, the instructor should stop them and prompt the missing element before allowing them to move on. This should be marked with a +.
- If the student does not need assistance for that element and produces it correctly, mark a √ in the space.
- If the student asks for help (e.g. “What’s his name?”), mark an A in the space.
- In the group retell place an X in the space where the instructor produces the part of the story. Use this code any time the instructor produces the story/parts of story instead of student.

**Each Part of the Story Retold Accurately**

- The instructor must ensure that the student(s) retell each of the five components regardless of the prompt level used. It is not sufficient that the instructor says the part of the story; the student must say each part themselves (before or after assistance). If at any point during the step any student misses one of the five critical story grammar elements, the item should be marked as a minus. If the instructor provides appropriate prompts to get the student to say the part of the story, but the student refuses, the instructor should tell that part. This should be marked with an X.
Appendix F

Rotation of Steps in which Students Retell Individually
# Rotation of Steps in which Students Retell Individually

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
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<th>Thursday</th>
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<td>4</td>
<td>6</td>
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<tr>
<td>Aimee</td>
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<td>6</td>
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<td>Donald</td>
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<td>Evan</td>
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<td>Ron</td>
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<td>3</td>
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Appendix G

Prompt Hierarchy
Prompt Hierarchy

Level 1

- Asking indirect questions:
  - “What’s next?”
  - “Then what happens?”

Level 2

- Asking direct questions:
  - “Who is the story about?”
  - “How does that make her feel?”
- Directly prompting an element
  - “You need to tell us what she does?”
  - “Tell about the problem.”

Level 3

- Cloze procedures
  - “He fell and hurt his knee. Now he feels ________.”
  - “She asked for a piece of cake with a flower on it and then ________.”

Level 4

- Modeling the part of the story
  - “She’s sad.”
  - “Then she got a piece of cake with a flower on it.”
Appendix H

Social Validity Questionnaire
Social Validity Questionnaire

Directions: After viewing the video of the narrative intervention study, please respond to each statement by circling the response that best fits your level of agreement.

1. Story-telling is an important aspect of language.
   
<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Agree Somewhat</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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   Comment:

2. The activities were appropriate for preschoolers.
   
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<th>Agree Somewhat</th>
<th>Disagree</th>
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<tbody>
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</table>

   Comment:

3. The students enjoyed the activities.
   
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<th>Agree Somewhat</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
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<td>2</td>
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   Comment:

4. The activities can be adapted for use in a classroom with a larger group.
   
<table>
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<th>Agree Somewhat</th>
<th>Disagree</th>
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<td>2</td>
<td>1</td>
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</table>

   Comment:

5. I am interested in using these activities to teach story-telling in my classroom.
   
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<th>Disagree</th>
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   Comment:
CURRICULUM VITAE

Trina D. Spencer

Address: Department of Special Education and Rehabilitation
Utah State University
2865 Old Main Hill
Logan, UT 84322-2865
Phone: (435) 797-3217
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EDUCATION

2009 Utah State University
Department of Special Education and Rehabilitation
Degree: Ph.D. – Disability Disciplines,
Emphasis: Special Education
Dissertation: The Effect of Narrative Intervention on Preschoolers’ Story Retelling and Personal Story Generation Skills
Chair/Advisor: Timothy Slocum, Ph.D.

2001 Utah State University
Degree: M.S. – School Psychology – NASP accreditation
Specialty: Emotional and Behavior Disorders
Thesis: Sociometric Change as a Function of ClassWide Peer Tutoring.
Chair: Carl D. Cheney, Ph.D.
Advisor: Gretchen A. Gimpel, Ph.D.

1998 Utah State University
Degree: B.A. – Psychology
Minors: Sociology and German

1994 Snow College
Degree: A.S. – Psychology

PROFESSIONAL CERTIFICATIONS

University of the State of New York – Department of Education
Public School Teacher Certificate – Certification area: School Psychologist
Control Number: 094921011 Date Issued: 9/01/01 Renewal Date: 9/01/04
The Utah State Board of Education – Professional Educator License

License Area of Concentration - School Psychologist (K-12)
Level 1 issued 10/24/01 Level 2 issued 3/22/04 Expiration: 06/30/12

Behavior Analyst Certification Board, Inc.
Board Certified Behavior Analyst, BCBA – Certification Number: 1-01-0669
Date of Issue: 12/31/01 Date of Recertification: 12/31/12

RESEARCH EXPERIENCE

Publications


Manuscripts – In Review


Professional Presentations

Phoenix, AZ.


Paper presented at Association for Behavior Analysis International Conference – San Diego, CA.


Spencer, T. D. (Nov., 2006). *Managing Behavior in Public.* Invited panel member and presenter for parent training series sponsored by the Utah State University health services. Logan, UT.


Spencer, T.D. (September, 2002). *The HCDS Parent Education Program.* Poster presented at Focus on Behavior Analysis in Education Conference – Columbus, OH.


Funded Grants

Howard Hughes Student Research Fellowship – Logan, UT
Grant awarded through Utah State University Biology Department
Project Advisor: Reed Warren, PhD and Dave Welker, PhD

Undergraduate Research Grant (URCO)– Logan, UT
Grant sponsored by the Honors Department and the Department of Psychology
Project Advisor – Carl D. Cheney, PhD

Non-Funded Grants

Schultz, J., Morgan, R., Groskreutz, N., Spencer, T. D., & Anderson, C. April, 2008 Employment Program (EMPRO) for Adults with Autism. Vocational Rehabilitation Service Models for Individuals with Autism Spectrum Disorders
U. S. Department of Education – Office of Special Education and Rehabilitation Services


TEACHING EXPERIENCE

Instructor

Fall, 2008
Special Education 5040 – Foundations of Effective Assessment and Instruction
Utah State University – Department of Special Education and Rehabilitation
Cooperating Faculty: Benjamin Lignugaris/Kraft, PhD (Department Head)

Co-Instructor

Fall, 2007
Special Education 5040 – Foundations of Effective Assessment and Instruction
Utah State University – Department of Special Education and Rehabilitation
Cooperating Faculty: Benjamin Lignugaris/Kraft, PhD (Department Head)

Co-Instructor/Teaching Assistant

Spring, 2007
Special Education 5060 – Consulting with Parents and Professionals

Utah State University – Department of Special Education and Rehabilitation
Cooperating Faculty: Barbara Fiechtl (Early Childhood Special Education Coordinator)

Instructor
Psychology 140 - Analysis of Behavior: Basic Principles
Utah State University – Department of Psychology, Logan, UT
Supervisor: Carl D. Cheney, PhD

PROFESSIONAL EXPERIENCE

Doctoral Fellow
Utah State University – Department of Special Education and Rehabilitation
Advisor: Timothy A. Slocum, PhD

Research Coordinator
Autism Support Services: Education, Research and Training (ASSERT)
Utah State University
Supervisor: Thomas S. Higbee, PhD

Student Teaching Supervisor
Utah State University – Department of Special Education and Rehabilitation
Cooperating Faculty: Barbara Fiechtl (Early Childhood Special Education Coordinator)

School Psychologist and Coordinator of ABA Programs
Prime Time for Kids, Children’s Services – ARC of Rockland, New City, NY
Supervisors: Lisa Delaney, MS, Donna Bogin, MS, and Karyl Caplan, MS

Private Behavioral Consultant
Westchester and Rockland Counties, NY
- Provide in-home training to parents, siblings, and child-care providers regarding daily scheduling, homework, token economy, eating issues, verbal behavior, behavior management, advocacy, toilet training, problem solving, self-monitoring, night-time or morning routines, etc.

Independent Evaluator
Westchester and Rockland Counties, NY
- Conduct comprehensive evaluations for children with autism for local school districts.
- Recommend IEP goals and curriculum modifications.
- Serve as the autism expert at meetings.

Low Incidence Disability Specialist
2001 – 2006

2004 – 2005
Ossining Union Free School District - Ossining, NY

- Develop new programs for children with autism and other developmental disabilities, consult with teachers and paraprofessionals, provided training and support to classroom staff and parents.
- Serve as case manager and chair committee meetings. Conduct reevaluations for students classified as autistic.

Supervisor: Maureen Boozang-Hill, MS; Co-Consultant: Susanne Wilson, MS

Parent Education Coordinator 2001 – 2004
Hawthorne Country Day School (HCDS) - Hawthorne, NY

- Develop a parent education program, create curriculum for parents, conduct workshops, and individual training sessions, and serve as a liaison and advocate for families.

Additional Responsibilities Held at HCDS
- Supervise teachers and teaching assistants.
- Supervise preschool and primary grade classrooms.
- Conduct staff training workshops.
- Conduct functional behavioral assessments and consult in classrooms regarding behavior.
- Attend CSE/CPSE meetings and make recommendations for school and home.
- Supervise practicum students.

Supervisor: Chris McDonough, PhD

Fred S. Keller School - C.A.B.A.S. ® - Yonkers, NY
Margaret Chapman Residential School - Hawthorne, NY

Supervisors: Olivia J. Hooker, PhD (Fordham University), Gretchen Gimpel, PhD (Utah State University), and Chris McDonough, PhD (Columbia University Teachers College)

Graduate Student Participant – Summer School Institute
Summer 2000
Morningside Academy – Seattle, WA.

- Attended an intense 5-week didactic and classroom training experience covering topics such as, concept analysis, curriculum development, Direct Instruction, Precision Teaching, Personalized System of Instruction, performance analysis, evidence-based instructional strategies, etc.
- Developed a spelling peer-tutoring program for seventh grade students.

Supervisors: Kent Johnson, PhD and Michael Fabrizio, PhD

Assessment and Behavior Specialist 1998-1999
Family Intervention Program (FIP) - Utah State University Center for Persons with Disabilities

Supervisor: Phyllis Cole, PhD and Seb Streifel, PhD
Research Assistant
Institute for the Study of Child, Youth and Families At-Risk – Logan, UT
Supervisor: Richard Young, PhD
1997-1998

Practicum Student in School Psychology
Preston School District – Preston, ID
Supervisor: Dave Forbush, PhD and Gretchen Gimpel, PhD
1999 – 2000

Practicum Therapist
Utah State University - Psychology Community Clinic – Logan, UT
Supervisor: Gretchen Gimpel, PhD and Katherine Hoff, PhD
1998 - 1999

AWARDS, LEADERSHIP, AND FELLOWSHIP

2008-2009 Four Corners Association for Behavior Analysis – Student representative
2006-2009 Leadership Training Fellowship – Special Education and Diversity
May 2004 “The Mother of all Apple Awards” – Award presented by a group of parents
1999 - 2000 Student Advocates of Behavior Science (SABS) Club President
1998 - 1999 Graduate Student Training Fellowship – Emotional and Behavior Disorders
April 1998 Scholastic, Teaching, Applied, Research (STAR) Award – Utah State University
1997 - 1998 Psi Chi Executive Council Secretary
1994 - 1998 Howard Hughes Medical Center / USU Biology Department Student Research Fellowship
1992 - 1998 Honor Roll / Dean’s List – Utah State University and Snow College
1992 - 1994 Full Academic Scholarship – Snow College
1993 - 1994 Student Government Activities Committee Chairperson – Snow College
1992 - 1993 DECA Club Activities Secretary

PROFESSIONAL AFFILIATIONS

Council for Exceptional Children
Division of Early Childhood
Association for Behavior Analysis
Four Corners Association for Behavior Analysis
California Association for Behavior Analysis
American Speech Language Hearing Association