A Comparative Study of
ELL and EL1 Narrative Competence
During the Kindergarten Years

by

Kathleen Hipfner-Boucher

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Department of Human Development and Applied Psychology
Ontario Institute for Studies in Education of the
University of Toronto

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Kathleen Hipfner-Boucher
Department of Human Development and Applied Psychology
University of Toronto

Abstract

Stories are complex linguistic constructions through which we share our interpretations of the social world. The ability to comprehend and produce stories is referred to as narrative competence. Narrative competence is rooted in social interactions in the preschool years that foster a sense of story structure and familiarity with story language. It has been shown to play a critical role in reading and writing achievement in the elementary school years since the language of literacy, like the language of storytelling, is predominantly decontextualized. The mastery of decontextualized language poses a significant challenge for children who enter kindergarten with little previous exposure to the majority language. The storytelling ability of these children was the focus of the present study.

The study's primary aim was to examine second language narrative competence across the kindergarten years by comparing the fictional stories generated by a cross-section of EL1 and ELL junior and senior kindergarten children in response to a wordless picture book from the point of view of macrostructure (story structure), microstructure (story language), and the use of evaluative language. Grade and gender differences across and within language groups were also considered. A second aim of the study was to examine the relationship between narrative competence and receptive vocabulary and between narrative competence and print-based emergent reading skill.
Overall, the results suggested that the ELL children's narratives were comparable to those of their EL1 counterparts with respect to most measures of microstructure, and with respect to macrostructure and evaluative language use. The one clear language-based difference favouring the EL1 children related to morpho-syntactic quality. Age-related differences were obtained on most measures and the results suggested parallel developmental trajectories across language groups. Gender was found to play a more prominent role in ELL than EL1 narrative performance. Few aspects of narrative were predicted by receptive vocabulary, suggesting dissociation between word- and discourse-level skills, particularly among the ELL children. On the other hand, emergent literacy scores predicted several aspects of microstructure, macrostructure and evaluative language use. The study provides evidence that various aspects of narrative competence might be differentially related to vocabulary and emergent literacy skills in ELL and EL1 kindergarten children.
Acknowledgements

Once upon a time, a woman embarked upon a long, long journey toward greater understanding. The road upon which she walked was all but straight and along the way, she encountered many an obstacle, some more difficult than others to overcome. She was at times happy – very happy – and sad, determined and defeated, confident and hesitant. But at no time was she alone. Many a companion walked with her on her journey; they guided her, nourished her, laughed with her and believed in her. They shared with her their insights, values, knowledge, and talents, showering her with gifts that enrich her still. To each she felt immeasurable gratitude:

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The woman has reached a milestone in her journey. She will stop but a moment to catch her breath and look back upon the road already travelled before continuing on her way, searching happily ever after.

The End
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Chapter One: Introduction

Storytelling is a universal practice through which we capture, reflect on, and share our interpretations of life experiences (Jarvey, McKeough & Pyryt, 2008). Stories range in scope from personal accounts of quotidian events, to tomes recounting epic moments in human history, to fanciful renderings of the implausible or impossible. They are complex linguistic constructions whose purpose is to inform, entertain, and teach (McKeough, Davis, Forgeron, Marini, & Fung, 2005). Storytelling permits human beings to order their experience in time and is one of the primary means we have at our disposal to make coherent sense out of seemingly unrelated sequences of events (Worth, 2008). Stories achieve this, in large part, by linking observable actions to their consequences via reference to characters’ internal states – to the thoughts, beliefs, desires and motivations that give rise to actions in the first place. In so doing, stories act as templates of human behaviour that allow us to interpret the social world (McKeough, Genereux, & Jeary, 2006). They reflect the traditions of “meaning making through talk” (p. 306) that children come to know and appropriate as members of a particular cultural community (Michaels, 1991).

The language of storytelling – or narrative – is decontextualized. Decontextualized language, also referred to in the literature as extended discourse (Snow, 1999), displaced reference (Engel, 1995) or academic language (Cummins, Bismilla, Cohen, Giampapa, & Leoni, 2005) refers to language that is used to convey novel information to an audience that may share only limited background knowledge with the speaker and that may be far removed from the events or objects being described (Whitehurst & Lonigan, 1998). It is talk about the world beyond the here and now; it is talk of the there and then (Wolf, 1993). Decontextualized language stands in contrast to the contextualized language of interpersonal communication that
regulates social interactions and is typified by face-to-face conversation in which speakers and listeners may draw upon such resources as shared knowledge, gesture, intonation, facial expression, interactive negotiation of meaning, and feedback to facilitate mutual comprehension (Sulzby, 1985).

Decontextualization requires that meaning be encoded by purely linguistic means (Crais & Lorch, 1994). As a result, the language used in the context of storytelling has particular features – referred to as literate language features or story language – through which meaning is conveyed in the absence of the real world cues that support comprehension in contextualized discourse (Curenton & Justice, 2004). These include the use of precise and elaborate vocabulary, procedures for making information and ideas linguistically explicit, and sophisticated syntactic markers that link utterances to one another. The ability to comprehend and produce extended stretches of discourse is referred to as narrative competence (Pellegrini & Galda, 1993).

Skill in producing and comprehending decontextualized language has been linked to literacy outcomes once code-related skills are in place (Dickinson & McCabe, 2001; Griffin, Hemphill, Camp & Wolf, 2004; Kendeou, van den Broek, White & Lynch, 2009; Snow, Tabor, Nicholson, & Kurland, 1995; Snyder & Downey, 1991; Storch & Whitehurst, 2002). Furthermore, research has demonstrated that young children’s ability to engage in decontextualized talk facilitates early school adaptation (Feagans, 1982; Hemphill & Snow, 1996). Decontextualized language has been shown to relate to academic achievement (Crais & Lorch, 1994; Feagans, 1982; Feagans & Appelbaum, 1986), including mathematical ability (O’Neill, Pearce & Pick, 2004).

Preschool children’s sensitivity to the distinct registers of contextualized and decontextualized language is demonstrated in their ability to comprehend and engage in talk that
is increasingly “written-language-like”, beginning at approximately three years of age in typically developing children (Sulzby, 1985). Research has demonstrated that children begin to use decontextualized language within the context of dramatic play (Benson, 1993; Pellegrini & Galda, 1991; 1993) and in recounting events derived from personal experience (Hudson & Shapiro, 1991). Research has also shown that limited ability to produce and comprehend narratives is one of the characteristics that distinguish language-impaired children from their typically developing counterparts (Catts, Fey, Zhang, & Tomblin, 2001; Feagans & Short 1984; Greenhalgh & Strong, 2001; Rvachew & Savage, 2006). Children who experience difficulty in mastering this particular form of discourse are generally viewed as being at risk for academic failure (Boudreau, 2008; Current & Justice, 2004; Greenhalgh & Strong, 2001; John, Lui & Tannock, 2003).

Storybook-reading practices in the home have been found to be important influences on the development of decontextualized language in young children (Current, Craig & Flanagan, 2008). Teale & Sulzby (1999) propose that reading aloud with children serves to bridge the gap between contextualized and decontextualized language, making the complex, formalized discourse of narrative accessible to children. In their meta-analytic review of the effects of storybook reading on language and literacy development, Bus, VanIJzendoorn & Pellegrini (1995) argue that through storybook reading experiences, children are confronted with the literary language register – the grammatical forms and discourse rules governing narrative – in ways that conversation typically does not allow. This, they concluded, is a prerequisite for reading comprehension.

The mastery of decontextualized language poses a challenge for all children, but poses a particular challenge for children who enter Ontario’s education system with little previous
exposure to English, the language of instruction in the majority of the province’s publicly funded schools (Cummins et al., 2005). Children who speak a home language other than English are faced with the task of acquiring initial communicative skill in English in an environment that favours decontextualized, literate language. Decontextualized language permeates the classroom; it is not restricted to the domain of language arts instruction. I clearly remember conversations I had as a teacher following schoolyard altercations between classmates in which I would ask my students to provide me with an account of the events and encourage them to think about things that could have been done to avoid the conflict in the first place or would be done in the future to ensure that a similar incident not occur. Language that recreates scenarios played out in the past or imagines hypothetical scenarios situated in the future – decontextualized academic language – is the standard fare of the classroom.

The National Literacy Panel on Language Minority Children and Youth noted a dearth of studies focusing on the development of discourse-level skills in English Language Learners (ELLs) (August & Shanahan, 2006). However, the findings of existing studies led the panel to report that although language minority children perform on a par with native English speakers in word-level reading skills in the elementary grades, they lag behind in text-level skills (i.e., reading comprehension and writing) (Geva, 2006). The disparity in performance, the panel suggests, may be due to the differential role oral language proficiency plays in the acquisition of code-related and meaning-related skills. Research is needed to elucidate the process by which English Language Learners develop, or fail to adequately develop, academic language proficiency.

The present study addressed this important issue. Its primary aim was to examine narrative competence in ELL children during the kindergarten years by comparing the fictional
stories generated by a cross-section of native and non-native English-speaking kindergarten children in response to a wordless picture book. The English narrative samples produced by these children were analysed from the point of view of macro-structure (story structure) and micro-structure (story language), two distinct yet interrelated domains of narrative, as well as the use of evaluative language, an aesthetic aspect of narration. The ELL children involved in this study spoke a variety of languages; like their English-language counterparts, all had completed at least one full year of a two-year, half-day kindergarten programme in which the sole language of instruction was English. Age-related differences within and between language groups were explored, as were potential gender differences within and across language and age groups. The second goal of the study was to investigate possible associations between narrative performance, receptive word knowledge, and emergent literacy outcomes.

This study situates itself within an emergent literacy framework which recognizes that children come to the formal school setting with knowledge, skills, and attitudes that set the stage for the eventual mastery of conventional forms of literacy (Teale & Sulzby, 1986). From the emergent literacy perspective, the acquisition of literacy is conceptualized along a developmental continuum running from early childhood through to the middle school grades. Literacy-related behaviours originating in the preschool years are thus legitimized and recognized as important building blocks of the process of learning to read and write (Whitehurst & Lonigan, 1998).

The 2006 Statistics Canada census data indicate that 2.26 million people living in the census metropolitan area of Toronto are native speakers of a language other than English or French, the two languages in which publicly funded education is guaranteed under the Canadian

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Charter of Rights and Freedoms. This number compares with the 2.75 million respondents who report English as their mother tongue and the 58.5 thousand who identify themselves as native speakers of French. As a result, the classrooms of Toronto and the surrounding area are among the most ethnically and linguistically diverse in the world. Educators, clinicians and researchers working within this multi-cultural context have the responsibility of ensuring that the English-language needs of all students be identified and met, while honouring the cultural and linguistic traditions children bring from home.

Given the diversity in the student population they serve, it is imperative that the research and teaching communities work collaboratively to identify the potential challenges and obstacles to academic success that English language learners face. The acquisition of the language of oral and written narrative is clearly one of those challenges. It is essential that the specific learning needs of ELL students be effectively assessed, adequate instruction provided, progress tracked and, where needed, remediation made available. Without benchmarks against which to measure the development of ELL narrative competence, children potentially at risk for academic failure may fail to be identified in a timely manner. This study is a small step toward the establishment of performance indicators for a multi-lingual sample of ELL kindergarten children in the area of narrative skill development over the kindergarten years. Recommendations for instruction based on the research findings are also made.
Chapter Two: Review of the Literature

A minimal definition of narrative states that it is a recapitulation of successive events made up of at least two clauses that are temporally ordered (Ilgaz & Aksu-Koç, 2005; McCabe & Peterson, 1991). While this definition may adequately describe the narrative monologues of early childhood (Nelson, 1989), it belies the depth and complexity of a well-crafted story and fails to capture the centrality of narrative to human experience. An appreciation of its primacy – and of its value as a subject of empirical investigation – rests on an awareness of narrative as a fundamental mode of thought and expression.

The literature review begins with a definition of the two modes of narrative as a means of situating the concept within its broadest framework. From there, it will narrow its focus to narrative discourse, and in particular, to the subgenre of narrative known as stories, since fictional storytelling is the subject of the present study. A discussion of the features that define developed narratives will follow. Terms will be introduced that are essential to an understanding of storytelling; the concept of narrative’s dual landscape is of particular importance within the context of this thesis. From there, the reader will be led through a review of empirical studies investigating the origins of narrative competence, including a review of the literature relating play and storybook reading to its development. The play and shared reading contexts offer valuable avenues to explore in considering the educational implications of this study. Thus, the initial sections of the literature review address the following two questions: What is narrative? and How does narrative competence develop?

The literature review will subsequently focus on issues related to the study of storytelling ability. The three dimensions of narrative that allow researchers to measure competence will be
discussed as will research findings relating to their development. A brief review of the experimental paradigms within which narrative is studied will be presented. Thus, these sections of the literature review address the question: How is narrative competence assessed?

The final three sections are meant to situate particular aspects of the present study within a specific empirical context. The study was premised on the notion that narrative competence is a foundational skill supporting literacy acquisition, a “passport into reading and writing” (Wolf, 1993, p. 44). It attempts to establish associations between narrative competence in the kindergarten years and emergent literacy. The research underlying that premise will be reviewed in the section entitled, "The Narrative-Literacy Connection". At the same time, the study aims to compare story generation in children identified as monolingual and bilingual. Hence, a review of the literature focusing on narrative competence in dual language learners will follow. Finally, the question of potential gender differences will be considered, necessitating a discussion of the research findings relating gender and narrative competence.

Narrative Defined

Narrative as a Mode of Thought

The word ‘narrative’ is derived from the latin word ‘gnarus’, meaning ‘knowing’. From an etymological point of view, the narrator is ‘one who knows’ (Prince, 2003). Thus, Bruner (1986) evokes the root of the word when he asserts that narrative is a way of knowing. Narrative, he argues, represents one of two modes of human thought, the second being the paradigmatic mode of thought. The narrative mode of thought concerns itself with psychic reality; it deals with issues of human experience, with beliefs and desires, intentions and emotions (Astington, 1990). Narrative thought provides a way for people to organize, represent, and understand human
actions and behaviour, finding expression in drama and story. Hymes and Cazden (1980, as cited in Michaels, 1991) suggest that, “Narrative forms of thinking are inescapably fundamental in human life.” (p. 131) Children are particularly dependent on the narrative mode of thought as their primary means of understanding and making themselves understood (Van Dongen & Westby, 1986).

Paradigmatic, or logico-scientific mode, on the other hand, concerns itself with formal descriptions, explanations, and the establishment of empirical truths related to physical reality. Its language is akin to the language of logic and mathematics (Astington, 1990).

Narrative as a Discourse Genre

Narrative also describes a genre, a type of discourse defined by its communicative goals and functions (Berman & Nir-Sagav, 2007). A dichotomy parallel to Bruner’s dual modes of thought distinguishes our primary modes of formal discourse: narrative and expository. Expository discourse is topic oriented, focusing on concepts and issues. The unfolding of ideas, claims and arguments in expository discourse is expressed in terms of the logical interrelations among them. Its primary function is to instruct (Hughes, McGillivray & Schmidek, 1997).

Narratives, on the other hand, are representations of an event or a sequence of events. They are agent-oriented, meaning they focus on people, their actions and their motivations. While the unfolding of events within narrative is expressed within a temporal framework, causation is considered to be the sine qua non of a well-crafted story (Worth, 2008).

Within the narrative genre, Heath (1986) identifies four basic universal subgenres that young children the world over hear and come to reproduce. The first three, recounts, eventcasts and accounts, report factual events occurring across a span of time. Recounts are verbal
reiterations of events that are produced in response to an adult prompt. Although relatively uncommon in the child’s early linguistic environment, recounts typify much of school-based narration. Research shows that children who lack familiarity with this particular subgenre may experience difficulty meeting discourse-related expectations when they enter the kindergarten classroom (Crais & Lorch, 1994; Heath, 1983; Hemphill & Snow, 1996; Michaels, 1981).

Eventcasts are verbal replays or explanations of ongoing activities. They are supported narratives, in the sense that they are more grounded in immediate context than other forms of narrative (Ilgaz & Aksu-Koç, 2005). Eventcasts occur frequently in the course of pretend play as children negotiate and track their respective roles, assign meaning to the props that accompany play, and work collaboratively to develop a storyline to guide the play episode. Typically, eventcasts incorporate the metalinguistic or metacognitive commentaries (i.e., “Let’s pretend...”) on which literate behaviour depends (Olson, 1984; Pellegrini & Galda, 1993).

Accounts are the conventional form given to personal event narratives through which children spontaneously share first-hand experiences as well as the thoughts and feelings they evoke. They are rarely told for the unique purpose of relating happenings (as are recounts) but are generally embedded in larger social-interactive frames (Engel, 1995; Hemphill & Snow, 1996). Wolf (1993) suggests that accounts serve the purpose of preserving emotional attachment: to exchange narratives of personal experience, he argues, is to engage in a process of “following and mirroring” (p. 44) the emotional states and experiences of the other. Finally, stories are fictionalized accounts of animate beings engaged in goal-directed behaviour. They differ from the former narrative sub-types in the extent to which they are expected to conform to a conventional pattern referred to as story structure. Story structure will be discussed in detail subsequently.
It is important to note that although the narrative sub-genres are universal, the relative prevalence of each varies widely across socio-cultural groups, as does the precise form each takes, and the content deemed story-worthy (Heath, 1982; 1986). Stories are, above all else, a form of enculturation (Harkins, Koch & Michel, 2001).

The Features of a Developed Narrative

Bruner (1990) outlines the four features that define a developed narrative. The first two are particularity and sequentiality. Stories, he argues, recount a series of particular events experienced by particular characters that take place over a span of time. Applebee (1978) refers to these same features as centering and chaining, respectively. Other researchers, however, whose work has focused on storytelling in particular sub-cultures in the United States, question the universality of sequential, topic-centered narratives, and consider them to be artefacts of Western mainstream culture (Heath, 1986; 1983; Michaels, 1981; 1991).

At the same time, stories involve intentionality. They not only depict characters’ actions, but also indicate in either explicit or implicit terms, the intentions that motivate those actions or that arise in response to the events portrayed (McKeough, 1998). Stories, therefore, unfold simultaneously on two planes: on the external, objective plane of action, and on the internal, subjective plane of consciousness. Bruner (1986) refers to these planes as the dual landscapes of narrative. Astington (1990) found that by 4-years of age, typically developing children have achieved a level of social understanding that enables them to appreciate the dual landscape of story although others claim that reference to internal states to convey psychological causation is not common in self-generated narratives before age 5 or 6 (Benson, 1997; Nicholopoulou & Richner, 2007).
The fourth defining feature of narrative is canonicity and breach. Canonical stories describe prototypical actors caught up in conventional events that play themselves out according to well-rehearsed scripts: the kind and loving queen giving birth to a long awaited daughter who grows to be a sweet and beautiful princess, for example. While familiar and predictable, canonical stories hold little interest. The drama inherent in narratives emerges when there is a breach – a departure or deviation – from the expected canonical state, as when the good queen dies and is replaced by a wicked interloper who banishes the cherished princess to a life of misery (until, of course, she is taken into the care of seven little men and the canonical state is restored temporarily). With breach comes tension, the high point in the story. Over the course of the subsequent narration, the narrator focuses on the actions of characters that engender a resolution of the tension (Engel, 1995). Therein lies the purpose of the story, its raison d’être.

Lucariello (1990) considers breach to be the trigger of narrative. When encountering non-canonicity, she argues, the listener/reader is thrust onto the landscape of consciousness where story action is necessarily linked to the minds of the protagonists. She writes: “In the face of breach, the child has no recourse in the arena of action, but is compelled to move into the subjective plane” (p. 148).

A final characteristic of narrative is its indifference to fact (Kavanaugh & Engel, 1998). Narratives are not judged by their veracity or faithful depiction of some objective reality; instead, structural coherence, linguistic cohesion, and aesthetic quality are the yardsticks against which stories (and their tellers) are measured (Bamberg & Damrad-Frye, 1991; Feldman, 2005; Stein & Albro, 1997). Wolf (1993) writes:

Narratives aren’t faithful. They bear the imprint of a teller who means to make a point to a listener – so they are selected, weighted, and shaped tellings. To learn to narrate is, in effect, to learn to select, to shape, and to evaluate. (p. 43)
The Development of Narrative Competence

Pellegrini and Galda (1993) define narrative competence as the ability to understand and produce stories. A number of cognitive and linguistic abilities underlie the early development of narrative competence: increases in autobiographical and working memory, growth in reasoning about causal and temporal relations, the formation of routine event scripts and schemas, advancements in social understanding and reasoning, and development in expressive and receptive language (McKeough, Tourigny, Bird, & Romaine, 2008; Peterson, 2008a,b). Ultimately, however, children become narrators by narrating (Snow, 1999). A substantial body of research attests to the critical nature of child participation in the co-construction of narratives as a means of fostering the development of competence in the preschool years (Haden, Haine & Fivush, 1997; Reese, 1995; Snow, 1999; Snow & Dickinson, 1990; Sperry & Sperry, 1996; Uccelli, Hemphill, Pan & Snow, 1999).

The Co-construction of Early Narratives

Stories are cognitively demanding linguistic constructions (Johnston, 2008). Their production requires simultaneous and coordinated planning and ordering of content, assessment of the state of knowledge of the listener, and adherence to genre-specific rules governing narration that include the use of linguistic devices to tie the various elements of the story together into a comprehensible whole (Montonari, 2004; Snow, 1999). Throughout the course of the narration, the narrator must also keep in mind its purpose and attend to its overall structure (Johnston, 2008). Integrating these complex tasks requires previous practice in hearing, participating in, and producing extended discourse forms (Snow, 1999).

Learning how to use extended discourse such as narrative is a process that begins in face-to-face conversation with a more competent speaker, such as a parent (Griffin et al., 2004).
Parent-child reminiscing about shared past events beginning early in the second year of life, triggers the emergence of talk about people, places and things that are removed in time and space and informs the child’s nascent understanding of language as a means of exchanging information (Uccelli et al., 1999). The work of Peterson and McCabe (1992; 1994) elucidates the interactive process by which parents and caregivers model and scaffold early narrative production, paving the way for the child’s entrance into “a community of narrators” (Wolf, 1993, p. 44).

Initially, the adult provides both content and structure to a narrative that is punctuated by prompts for minimal child participation, such as responses to simple yes/no questions. As the child becomes more practiced, these prompts give way to demands for the provision of content information retrieved from memory. The child’s contributions are integrated in an overall narrative structure that continues to be provided by the adult. This shift typically takes place when the child is between 2½- and 3-years of age (Sperry & Sperry, 1996). The adult’s scaffold serves to direct the child’s attention to the features of narrative deemed to be important within a particular familial and cultural context (McCabe & Bliss, 2003; Wolf, 1993), to shape expectations about the sequencing of events in stories that will guide both comprehension and production (Ilga & Koç, 2005), and to promote greater detail, clarity, and precision in narration (Griffin et al., 2004). Over time, the child comes to internalize the adult model of narrative structure and begins to spontaneously generate stories that conform to it. By 5 years of age, typically developing children are generally well on their way to becoming proficient storytellers (Sperry & Sperry, 1996), although individual differences in narrative skill are “enormous” (Uccelli et al., 1999, p. 215).
Preschool Contexts That Support Emergent Narrative Competence

The preschool language and literacy environment plays an important role in supporting the development of narrative competence (Peterson & McCabe, 1992; Peterson, Jesso & McCabe, 1999). Research demonstrates that acquisition of decontextualized language is dependent on preschool children’s access to social interactions with more competent speakers, such as one-on-one conversations with adults and dinner table talk among family members (Beals, 2001; De Temple & Beals, 1991; Snow, 1999). Two such contexts are of particular importance to the development of storytelling ability and will be discussed in greater detail. These are pretend play and shared storybook reading.

Pretend Play

Like language, the capacity for pretense typically manifests itself in the second year of life, marking the emergence of representational thought or the ability to represent objects and events symbolically (Ilgaz & Aksu-Koç, 2005). Two forms of social play, both rooted in pretense, are related to the development of fictional narrative: socio-dramatic play and thematic fantasy play (Galda, 1984). The two differ with respect to the spheres of experience they represent. Socio-dramatic play mirrors reality. Within its make-believe frame, children use gestures and words to re-enact scripts or scenarios they have observed or had occasion to participate in. Through their involvement in socio-dramatic play, children are afforded the opportunity to rehearse, explore, and gradually master the everyday experiences they find most intriguing or challenging (Engel, 2005).

Thematic fantasy play, on the other hand, concerns itself with themes, roles, and events that are drawn from the imaginative realm, a world inhabited by fictive characters engaged in less than plausible scenarios (Applebee, 1978). Whereas socio-dramatic play reflects the world
of what is, thematic fantasy play is situated in the sphere of what if (Engel, 2005). Storybooks often serve as the source of inspiration for thematic fantasy play episodes (Rowe, 1998). Thematic fantasy play is thought to build on the mimetic foundation laid by socio-dramatic play (Nicholopoulou, 2005). Feldman (2005) argues that this same mimetic foundation underlies storytelling.

Engel (2005) offers a developmental perspective on the relationship between pretend play and narrative. She claims that the capacity for simple pretence that manifests itself in the child’s second year of life is a precursor to narrative (pretend) play that emerges a year later. Narrative play, in turn, is a precursor to the purely verbal narratives that emerge between 3 and 4 years of age. Nicholopoulou (2005) echoes a similar thought; she suggests that it is useful to think of a narrative continuum ranging from the enactment of narratives in dramatic play to their discursive exposition in storytelling. Paley (1990) argues that “play…[is] story in action, just as storytelling is play put into narrative form” (p. 4).

Pretend play, like literacy, is grounded in symbolic transformations, the “ability to use words, gestures or mental images to represent actual objects, events or actions” (Isenberg & Jacobs, 1983, p. 272). Early socio-dramatic play involves simple object transformations such as the use of a shoe to represent a car or a doll to represent a baby. As they mature, children begin to engage in role transformations, assigning functional, relational or character roles to props and playmates (Stone & Stone, 2007). By 4 years of age, typically developing children are able to use ideational transformations in their play; they pretend, for example, to be Goldilocks and sample imaginary bowls of hot, cold, and just-right porridge (Pellegrini, 1985). Thus, while children’s symbolic transformations are initially context-dependent, based on the physical properties of objects in the immediate environment, they gradually become more abstract and
relatively context-free (Pellegrini, 1985). As a result, increasingly elaborate, explicit eventcasts are required to maintain the fictional world within which the play episode is set (Sachs, Goldman & Chaillé, 1984). In this way, the symbolic nature of pretend play both necessitates and promotes the use of oral language that is characteristic of written language (Pellegrini, 1985; Pellegrini & Galda, 1990). Roskos and Christie (2001) also suggest that play serves as a language experience for young children that builds connections between oral and written modes of expression. In a similar vein, Wolf (1993) found that frequent narrative evaluation occurs in the context of social pretend play.

Pretend play and narrative share a common structure, as well as a common language. Descriptive studies have demonstrated that preschool children’s pretend play is characterized by the episodic structure that typifies narratives (Eckler & Weininger, 1989; Guttman & Frederiksen, 1985; Sachs et al., 1984; 1985; Uccelli et al., 1999; Wolf & Pusch, 1985). For example, Eckler and Weininger (1989) elicited play narratives from 4- to 8-year-olds using themed replica toys. They found that even their youngest subjects were capable of producing episodic play narratives. Significant development in structural complexity – ranging from a single episode to multiple, embedded episodes – was observed across the age groups.

Research suggests that the context of play promotes children’s emerging competence to construct episodic narratives. Ilgaz and Aksu-Koç (2005) hypothesized that the marriage of action and language in play serves as a cognitive support to facilitate plot development by decreasing on-line processing demands. They compared a cross-section of 3- to 5-year-old children’s play-prompted narratives to the narratives elicited under direct elicitation conditions. They found that the children’s narratives showed episodic structure in the play-prompted condition by 4 years of age. Comparable narratives were obtained in the direct-elicitation
condition by 5 years of age. The authors conclude that action serves as a “semiotic arena” (p. 539) to promote the development of narrative competence.

The work of Williamson and Silvern (1991) also suggests the importance of action in supporting the development of narrative competence. The authors theorized that thematic-fantasy play based on familiar storybooks would promote the development of story sense, which would in turn support story comprehension. As expected, they found that children’s recall of stories they had re-enacted after an initial teacher-led shared reading was significantly better than the recall of a no-enactment control group. However, they also found the advantage extended to recall of subsequent stories that were not re-enacted. The authors conclude that the thematic-fantasy play experience provided their subjects with metalinguistic knowledge about story structure that they were able to apply to novel story situations.

Pretend play, therefore, hangs on a narrative framework that is realized in language supported by action. Like stories, it is characterized by both temporal and causal organization of events around a plot. Galda (1984) suggests that in play, plot emerges as a result of the interaction of the players as they step out of role to stage-manage the play episode: to negotiate character assignments, to settle on the meaning to be attributed to props and actions, to resolve conflict as it arises, and to guide and direct the overall course of the play event. Research demonstrates that the verbal interactions that co-occur with symbolic play outside of the sphere of pretence, referred to as meta-play, are related to the development of narrative comprehension in both preschool and elementary school children (Galda, 1984; Pellegrini & Galda, 1993; Williamson & Silvern, 1991). Harris and Kavanaugh (1993) draw a further parallel between pretence and narrative structure, claiming that comprehension of make-believe episodes is analogous to story comprehension.
Shared Storybook Reading

Research has largely supported the claim that shared storybook reading in the preschool years supports language and literacy learning (Dickinson & Tabors, 1991; Neuman & Roskos, 1992; Payne, Whitehurst & Angell, 1994; Snow & Dickinson, 1990, Wells, 1985). For example, Bus et al., (1995) conducted a meta-analysis of the research literature that investigated the relationship between joint reading in the home and language and literacy outcomes in school over a 30-year period. The authors found that a significant proportion of variance in outcomes was accounted for by frequency of reading events in the preschool years, with effect sizes ranging from medium to strong. They concluded that parent-preschooler reading was a “necessary preparation” (p. 17) for beginning reading instruction at school. The authors determined that the effect tended to be strongest for oral language skills, supporting their hypothesis that exposure to books was particularly effective in familiarizing children with the written language register. Recent evidence corroborates this finding (Evans, Shaw & Bell, 2007; Levy, Gong, Hessels, Evans & Jared, 2006; Sénéchal & Lefevre, 2001; 2002; van Steensel, 2006). However, the oral language skill most frequently measured in these studies was word knowledge. The meta-analysis provided scant evidence specifically relating shared reading and discourse-level skill.

It is generally believed that storybook reading exerts its influence on narrative development in two ways: by introducing children to story language and by familiarizing them with the elements of story structure (Aksu-Koç, 2005; Curenton et al., 2008; Sulzby, 1985; Teale & Sulzby, 1999). With respect to story language, it is widely acknowledged that shared reading experiences expose children to the linguistic devices and conventions that distinguish written discourse from its oral counterpart (Geva & Olson, 1983; Snow, 1999; van Kleek, Gillam,
Hamilton & McGrath, 1997; Wells, 1985). Research demonstrates that with repeated exposure, children gradually appropriate the language of storytelling (Purcell-Gates, 1988; Sulzby, 1985). For example, Purcell-Gates (1988) compared the personal event narratives of kindergarten and grade two children identified as well-read-to preschoolers to the fictional narratives they produced in response to a wordless picture book. She found that within the picture book context, the children in both age groups generated narratives that incorporated more of the lexical and syntactic features of written language. Kaderavek and Sulzby (2000) found similar results in their study comparing the personal event accounts and emergent readings of typically developing and language impaired children between 2 and 4 years of age. Elsewhere, Harkins and colleagues (2001) found a significant correlation between maternal use of evaluative language in their renderings of a wordless picture book and children’s use of evaluation in their subsequent retellings of the same book and self-generated narrations of an unfamiliar picture book. Zevenbergen, Whitehurst and Zevenburgen (2003) report similar findings.

Parental mediation during shared reading is key to fostering the development of story language. Sulzby (1985) qualifies the language typically used by parents in the context of joint book reading as “hybridized” (p. 460) since features of both oral and written language permeate adult storybook narrations. In this way, she argues, the familiar language of conversation supports children’s first forays into the world of written discourse. Over time, the language parents use becomes increasingly text-like, as do their children’s emergent readings. Through their renderings of familiar stories, therefore, children demonstrate their capacity to internalize the features of written language modelled by their parents (Kaderavek & Sulzby, 2000).

Snow and colleagues (DeTemple, 2001; Snow, 1999; Snow & Dickinson, 1990; Snow et al., 1995) have conducted numerous studies examining the relationship between parental
modelling and scaffolding of decontextualized language during storybook interactions and narrative development. For example, DeTemple (2001) found that mothers’ use of decontextualized talk as they read to their 3-year-olds was positively associated with children’s performance on a task of narrative comprehension. Snow (1999) cautions, however, that frequency of exposure to extended discourse is not enough to ensure acquisition of skill in narration: only by repeatedly hearing, participating in and producing narratives, do children become narrators.

Shared reading in the preschool years also supports the development of children’s sensitivity to story structure (Teale, 1982). Morrow (2001) found that frequent exposure to well-crafted stories fostered children’s sense of story. As a result, children were more successful in constructing their own oral and written stories. In an earlier study, she found that guided practice in including story grammar elements in the retelling of previously read stories led to improvement in the overall quality of children’s story retelling and their ability to successfully answer comprehension questions based on the story retold (Morrow, 1985). van Kleek (2008) suggests that parental questioning related to the elements of story grammar during storybook reading improves children’s story comprehension.

Research by Sonnenschein, Baker, Serpell, Scher, Fernandez-Fein, and Munsterman, (1996) suggests another way that storybook reading influences the development of narrative skill. They found that a home environment that emphasized the entertainment value of literacy, and featured regular book reading among its literacy activities, predicted narrative comprehension in kindergarten.

Finally, there is ample evidence that shared reading experiences in the home can serve to promote children’s social competence, as well as their use of metacognitive language (Le Sourn-
Bessaoui & Deleau, 2001; Ratner & Olver, 1998) which in turn fosters an understanding of narrative’s dual landscape (Adrian, Clemente, Villanueva & Rieffe, 2005; Peskin & Astington, 2004; Zevenbergen et al., 2003). For example, Adrian, Clemente, Villanueva and Rieffe (2005) found a significant association between the frequency of storybook reading at home, mothers’ use of mental state terms in a picture-book reading task and child success on a series of false belief tasks. In a longitudinal study conducted two years later with children between 3 and 7 years of age, Adrian, Clemente and Villanueva (2007) examined the frequency with which mothers used cognitive verbs in reading-based discourse, as well as the pragmatic features of verb use. They distinguished between maternal references to their own or their child’s mental states during the shared story experience and references to storybook characters’ thoughts and actions expressed largely in “think” terms. The former were found to predict performance on both concurrent and delayed tasks of theory of mind, while the latter predicted performance on delayed tasks only. The authors also found that these pragmatic features of mothers’ metacognitive language were more sensitive than frequency measures for capturing the association with children’s understanding of mental states.

Not all research supports the notion of a connection between storybook reading and narrative. A recent study by Sénéchal, Pagan, Lever and Ouellette (2008) examined the relationship between the frequency of shared reading experiences and narrative coherence, cohesiveness, and complexity. Their measure of shared reading was a composite obtained by collapsing measures of frequency of reading and library visits, and parental familiarity with children’s book authors and titles. A monolingual sample of 106 4-year-olds generated one fictional narrative and one personal event narrative. No associations were found between shared reading and any of the narrative measures, contrary to expectations. The authors suggest that 4-
year-olds are still highly dependent on parental support to produce structured narratives and that
the quality of parent-child interactions during shared reading may influence narrative production
more than simple exposure to stories.

The Assessment of Narrative Competence

The Dimensions of Narrative

Research demonstrates that by 5 years of age typically developing children are well on
their way to becoming proficient storytellers. What does it mean to be a proficient storyteller?
For the most part, the clinical and research communities focus their analyses of narrative quality
on two dimensions of stories known to be sensitive markers of development: narrative
macrostructure (story structure) and narrative microstructure (story language) (Justice, Bowles,
Kaderavek, Ukrainetz, Eisenberg & Gillam, 2006). A third dimension, the use of evaluative
language, was the subject of investigation in a number of other studies (Harkins et al., 2001;
Ontai & Virmani, 2010; Shiro, 2003; Wenner, Burch, Lynch & Bauer, 2008). Each dimension
will be discussed in greater detail in turn.

Narrative Macrostructure

Applebee (1978) writes, “Complexity in most areas of cognition is handled through the
imposition of structure and stories are no exception” (p. 56). The structure imposed on stories is
known as a story schema. A story schema is the mental blue print of a story (McKeough, 1998).
The roots of story schema have been traced to the narrative scripts – the mental representations
of routine events – that allow toddlers and preschoolers to anticipate and make sense of the
affairs of day-to-day life (Paris & Paris, 2003; Lynch, van den Broek, Kremer, Kendeou, White
& Lorch, 2008). A story schema consists of a set of expectations about the temporal-causal
relations that bind events in a narrative; children gradually form these expectations as a result of
hearing, and telling, stories (Ilgaz & Koç, 2005). There is considerable agreement in the research literature with respect to the central role story schema plays in guiding narrative production (Ilgaz & Koç, 2005) and comprehension (Kendeou et al., 2009; Lynch & van den Broek, 2007; Skarakis-Doyle & Dempsey, 2008). Research also suggests that awareness of story structure leads to improved story recall, a measure of narrative comprehension (Trabasso & van den Broek, 1985).

Macrostructure is a measure of “imposition of structure”. Macrostructure refers to the hierarchical organization of narratives (Justice et al., 2006). Macrostructural analysis evaluates the overall structure of narratives – referred to as plot structure – in terms of the six story grammar components widely considered to be essential to narrative arc: setting, initiating event, internal response, attempt, consequence, and reaction (Mandler & Johnson, 1977; Stein, 1982; Stein & Albro, 1997). A description of each component is provided in Table 1.
Table 1

*Story grammar elements and their descriptions*

<table>
<thead>
<tr>
<th>Story Grammar Element</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Setting</td>
<td>Introduces the protagonist and other characters, provides background information, sets locale and time, describes personal states, traits, habitual actions or dispositions.</td>
</tr>
<tr>
<td>Initiating Event</td>
<td>An event that changes the state of affairs in the environment, causing a subsequent response from the protagonist. The function of the initiating event is to evoke an internal response in the protagonist.</td>
</tr>
<tr>
<td>Internal Response</td>
<td>Includes affective or emotional responses, goals or desires, and thoughts or cognitions. The internal responses motivate the protagonist to make an attempt to satisfy goals or desires.</td>
</tr>
<tr>
<td>Attempt</td>
<td>Represents the overt actions the protagonist performs in order to satisfy goals. The protagonist’s attempt results in some kind of direct consequence.</td>
</tr>
<tr>
<td>Consequence</td>
<td>Indicates whether or not the protagonist attained the goal and contains events that signify changes that result from the attempt. The direct consequence also initiates or causes a reaction on the part of either the protagonist or other characters.</td>
</tr>
<tr>
<td>Reactions</td>
<td>Frequently indicate how the protagonist feels, thinks, or behaves in response to the direct consequences, but they may also specify how other characters are affected by the direct consequence.</td>
</tr>
</tbody>
</table>

Adapted from John et al., 2003

Story grammar provides a framework for conceptualizing the structure of stories in terms of episodes, defined as a unified set of actions that are temporally and/or causally linked and that work to overcome some problem or obstacle (Benson, 1997). Within the episodic frame, characters set goals, perform actions geared at achieving those goals, and react to the outcomes and consequences of their goal-directed efforts (Peterson & McCabe, 1983). Episodic (or plot) structure is dependent on the narrator’s appreciation of the dual landscapes of narrative, the understanding that the actions and behaviours of story characters are driven by their motives and intentions, which are in turn rooted in internal states such as feelings, beliefs, desires, and
cognitions (Benson, 1997). The extent to which the elements of story grammar are incorporated into a narrative provides an estimate of the narrator’s awareness of story schema – as well as her/his ability to express the temporal sequencing of actions and events and the causal relationships among them (Hudson & Shapiro, 1991; John et al., 2003; Makdissi & Boisclair, 2006).

Coherence – a yardstick of narrative quality – is achieved through the logical sequencing of story grammar elements (Cain, 2003; Davies, Shanks & Davies, 2004). Research shows that coherence emerges at approximately 4 years of age as children begin to produce minimal narrative sequences made up of temporally bound events (Berman & Slobin, 1994; Cain, 2003). This emergence coincides with important developments in children’s understanding of human intentionality (Price et al., 2006). Between 5 and 6 years of age, children become relatively adept at telling narratives with simple, yet causally coherent episodes that draw connections between characters’ actions and the motives that gave rise to them (Lynch et al., 2008; Olson & Gee, 1988). The structural complexity of their narratives increases as children begin to incorporate more episodic components in their stories and as the relations between events within the narrative increasingly shift from temporal to causal (Benson, 1993; Peterson & McCabe, 1983; Stein & Albro, 1997). The ability to produce a coherent narrative has been shown to relate to skill in reading comprehension in early primary school-aged children (Cain, 2003; Cain & Oakhill, 1996; Geva & Olson, 1983).

For both clinical and research purposes, narratives are frequently assigned an overall macrostructure score based on the presence or absence of story grammar elements (Davies et al., 2004; Fiestas & Peña, 2004; Hayward & Schneider, 2000). The inclusion of an initiating event, an attempt and a consequence are of particular importance in determining the overall
Hughes et al., (1997) propose a developmental framework for narrative based on the work of Stein (1982). It is comprised of seven levels of story structure through which children pass on their way to becoming competent storytellers. Their story structure levels range from the descriptive sequences devoid of temporal or causal relations produced by 3-year-olds to the complex, multi-episodic narratives of middle school children. Table 2 provides an overview of the framework as it applies to single episode narratives.

Table 2
*Story Structure Levels, Ordered From Least to Most Complex*

<table>
<thead>
<tr>
<th>Story Structure Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive Sequence</td>
<td>Describes character(s), surroundings, and habitual actions with no causal relations.</td>
</tr>
<tr>
<td>Action Sequence</td>
<td>Lists actions that are chronologically but not causally ordered.</td>
</tr>
<tr>
<td>Reactive Sequence</td>
<td>Includes a series of actions, each of which automatically causes other actions, but with no planning involved; no clear goal-directed behaviour.</td>
</tr>
<tr>
<td>Abbreviated Episode</td>
<td>Provides aims or intentions of a character but does not explicitly state the character's plan to achieve aims; planning must be inferred.</td>
</tr>
<tr>
<td>Incomplete Episode</td>
<td>States planning, but one or more of the three essential story grammar parts of a complete episode is missing: initiating event, attempt or consequence.</td>
</tr>
<tr>
<td>Complete Episode</td>
<td>Includes aims and plans of a character; may reflect evidence of planning in the attempts of a character to reach the goal; has at minimum an initiating event, an attempt, and a consequence; uses words like decided to.</td>
</tr>
</tbody>
</table>

Source: Hughes et al., 1997
Research demonstrates that the structural organization of stories is relatively invariant across cultures and languages (Mandler, Scribner, Cole & Deforest, 1980). The narratives produced by children who speak Chinese, English, German, Hebrew, Spanish, and Turkish have been shown to adhere to similar structural principles (i.e., characters engage in goal-directed actions that relate to and/or resolve problems or complications) (Berman & Slobin, 1994; Wang & Leichtman, 2000). They differ, however, in terms of content since stories tend to reflect the values and beliefs of a particular cultural or linguistic group (Muñoz, Gillam, Peña & Gulley-Faehnle, 2003).

Narrative Microstructure

From a developmental perspective, narratives provide information about the child’s ability to plan, organize, and monitor speech that extends beyond the level of the sentence (Fiestas & Peña, 2004). The move from the local level of intra-sentential organization of words to a global level of inter-sentential organization is dependent on mastery of the “linguistic tools for narrative” (Wolf, 1993, p. 45). These linguistic tools, generally referred to as story language, include the pronouns, inflections, determiners, and conjunctions that are needed to express the temporal, causal, and anaphoric connections between individual utterances (Pearson & de Villiers, 2005). With mastery of story language, children’s oral stories become more complete in terms of the information they convey, and more complex, gradually taking on the characteristics of written texts (Snow & Dickinson, 1991; Wells, 1985).

The features of story language, or literate language features, are the focus of narrative microstructure analysis. Microstructure comprises indices of productivity (story length) and complexity (syntactic organization) (Justice et al., 2006), as well as cohesion (Shapiro & Hudson, 1991). Cohesion refers to the use of linguistic devices that tie the story together at a
local level by indicating the semantic (i.e., temporal or causal) relations between propositions (Cain, 2003; Geva & Ryan, 1985). Cohesive or connective ties are the glue that bind the individual sentences of the narrative to one another so that they form a unified whole that makes sense to the audience (Hughes et. al, 1997). Narrative discourse has a particularly high density of connectives relative to conversational discourse (McCabe & Peterson, 1991).

While coherence in narrative is achieved through the logical sequencing of story grammar elements, cohesion is achieved when the relationships between those elements are conveyed effectively (Davies et al., 2004). Coherence and cohesion are mutually dependent. Cohesive language is critical to the establishment of structural coherence; at the same time, the use of appropriate cohesive language requires awareness of structural coherence (Cain, 2003; Peterson & McCabe, 1991). Shapiro & Hudson (1991) suggest that sensitivity to structural coherence directs children’s focus to the task of establishing linguistic cohesion.

Measures of productivity are generally restricted to simple counts of words and propositions (measures of story length), as well as novel word counts (a measure of lexical diversity). While some studies have shown age-related differences with respect to productivity (Currenton & Justice, 2004; Justice et al., 2006), others failed to find significant differences (Muñoz et al., 2003; Shapiro & Hudson, 1991) or found certain indices of productivity to be more developmentally sensitive than others (Ucelli & Páez, 2007). For example, Ucelli & Páez (2007) found no significant increase in the total number of words children generated in their fictional narratives between kindergarten and grade one. Increases in the number of different words children used in their narrations were, however, found to be sensitive to development.

Syntactic complexity is generally operationalized in terms of mean length of propositions and number or proportion of complex propositions (defined as a proposition containing an
independent clause and at least one dependent clause, such as: *The pig asked the chicken if they were her eggs*. Cohesion is related to complexity (Justice et al., 2006). It is operationalized in terms of the frequency of occurrence of linguistic markers that establish intra- and intersentential connections, particularly coordinating and subordinating conjunctions. Conjunctions make explicit the semantic relationships between propositions, connecting new information to information that preceded it (McClure & Geva, 1983). An understanding of interclausal relationships is key to narrative comprehension since it is the backbone of narrative coherence (Crosson, Lesaux & Martinielli, 2008).

There are four common subtypes of conjunctions. Research shows they are acquired in a particular developmental order. The four subtypes are, in order from least to most difficult: additive (*and, too*), temporal (*then, next*), causal (*because, since*) and adversative (*but, however*) (Crosson & Lesaux, 2007). Research also shows that children may begin producing connectives in their oral language well before they fully understand their meaning (Geva, 2006) and that subordinating conjunctions are more challenging for children to master than coordinating conjunctions (McClure & Geva, 1983).

Research demonstrates developmental trends with respect to complexity (Curenton & Justice, 2004; Muñoz et al., 2006, but see Greenhalgh & Strong, 2001) and the use of cohesive language in children’s narratives (Cain, 2003; Curenton & Justice, 2004; McClure & Geva, 1983; Peterson & McCabe, 1983). For example, Muñoz et al. (2003) conducted a study to determine whether measures that are frequently used to describe narrative development in mainstream children are useful for capturing early narrative development in Latino children from communities of low SES. They found significant differences in the mean length of propositions generated by 4- and 5-year-olds, leading them to conclude that indices of complexity are
sensitive markers of narrative development in bilingual children. Shapiro and Hudson (1991) found that 6-year-olds produced stories with a greater proportion of temporal connectives relative to the stories produced by 4-year-olds. They suggest that children’s ability to produce coherent stories is enhanced when their narrative attempts are supported with pictures that depict a well-formed story and that providing the opportunity to preview the picture sequence facilitates the use of cohesive language at an earlier age.

**Evaluative Language**

Cohesion and cohesiveness are no doubt essential characteristics of a well-crafted story; of equal importance are a narrative’s aesthetic or artful quality and its ability to captivate an audience (Glenn-Applegate, Breit-Smith, Justice & Piasta, 2010; Ukrainetz, 2001; van Dongen & Westby, 1986). The features of narrative that serve to capture and hold the listener’s attention and interest are collectively referred to as expressive elaboration (Ukrainetz, Justice, Kaderavek, Eisenberg, Gillam, & Harm, 2005; Ukrainetz & Gillam, 2009). Expressive elaboration includes the use of appendages (“You know what happened?” “And that’s how I got this bump on my head.”) that serve as bookends to the storytelling, and orientations that set the stage for narration beyond the simple setting information of character, place, and time (Ukrainetz et al., 2005). The frequency with which elements of expressive elaboration occur in narratives has been shown to distinguish language-impaired children from their typically developing peers (Ukrainetz & Gillam, 2009).

One dimension of expressive elaboration in narratives has received particular attention in the research literature: evaluative language (Austington, 1993; Shiro, 2003; Tager-Flusberg & Sullivan, 1995). Evaluation describes the many ways the narrator can transmit perspective, be it his/her own or the perspective of a particular story character (Ukrainetz et al., 2005). Evaluative
comments provide explanations as to why events in the story occurred or to how they were perceived, and typically involve explicit reference to feelings, thoughts, and intentions (Eaton, Collis & Lewis, 1999). They suspend or emphasize story action in order to direct the listener’s attention to the elements in the narrative that the narrator believes to be of greatest importance (Zevenbergen et al., 2003).

Mandler et al. (1980) suggest that because evaluative devices are salient features of narration, they may help to increase children’s recall and comprehension of a story and facilitate their ability to structurally organize narrative information. The association between evaluative language and reading comprehension was borne out in a longitudinal study by Griffin and colleagues (2004). They found that the use of evaluative language in kindergarten predicted reading comprehension at 8 years of age, whereas control of macrostructure predicted written narrative proficiency. These findings point to differentiated relationships among particular oral discourse skills and separate domains of literacy.

Evaluative language includes, but is not limited to, modifiers (adjectives and adverbs), information regarding internal states (emotions, cognitions, intentions, physical states, and perceptions), and character dialogue. Research shows that evaluative language begins to appear in the narratives produced by preschoolers – particularly in instances where the storytelling is supported by picture prompts – and is used with increasing frequency over the elementary years (Curenton & Justice, 2004; Eaton et al., 1999; Griffin et al, 2004; Harkin et al., 2001; McCabe & Peterson, 1983; Ukrainetz et al., 2005).
The Study of Narrative

Three experimental paradigms are typically used to evaluate expressive and receptive narrative skill in children. The first of these involves elicitation of personal narrative accounts in response to standard prompts. For example, Kaderavek and Sulzby (2000) conducted a study in which the experimenter related a simple personal narrative of an event that the child was likely to have experienced, such as falling down and hurting oneself or being frightened in the night, before asking the child a leading question that encouraged her/him to recount a similar episode. In another study (Sonnenschein et al., 1996), the prompt was one suggested by the child’s parents and was based on a memorable event the child was known to have experienced. Research suggests that accounts are the most culturally biased narrative subgenre (Heath, 1983).

The second experimental paradigm used to investigate narrative competence is story retell in which an experimenter narrates a story – most often with the support of a wordless picture book or series of illustrations that are unfamiliar to the child – before requiring the child to assume the role of narrator. Some researchers treat story retell as an indicator of productive language skill (e.g., Pelletier & Astington, 2004; Riley & Burrell, 2007), although most treat it as a measure of receptive skill (e.g., Kendeou et al., 2009; Skarakis-Doyle & Dempsey, 2008; Paris & Paris, 2003). Story retell tasks have been criticized on the grounds that they confound narrative ability with working memory capacity, particularly in cases where retell was required without recourse to visual supports (Feagans & Short, 1984; O’Neill et al, 2004).

The third method commonly used to investigate expressive narrative skill involves story generation, generally following a picture walk through a wordless picture book that is often, but not always guided by an adult (Benson, 1997; Capps, Losh & Thurber, 2000; Curenton & Justice, 2004; O’Neill et al., 2004; Shapiro & Hudson, 1991). A variation on the story generation
paradigm involves the use of a story stem completion measure, whereby the child is asked to complete a story begun by the experimenter (Fiorentino & Howe, 2004; Varnhagen, Morrison & Everall, 1994).

In most cases, the child’s storytelling is supported by the visual materials used in the original telling (Geva & Olson, 1983; Price et al., 2006; Riley & Burrell, 2007; van Kraayenoord & Paris, 1996), but in some cases is conducted in the absence of visual supports (John et al., 2003), or is supported by props that allow the child to re-enact the events of the story (Benson, 1993; Eckler & Weininger, 1989; Feagans & Short 1984). In some studies, children are invited to relate their story to a “naïve listener”, such as a puppet (Hayward & Schneider, 2000; John et al., 2003; Lynch, van den Broek, Kremer, Kendeou, White & Lorch, 2008; O’Neill et al., 2004). In others, the child is asked to “read” a story chosen from a selection of familiar books. A preliterate child’s re-telling of a story that is known to her/him is referred to in the literature as an emergent reading (Kaderavek & Sulzby, 2000; Sonnenschein et al., 1996; Sulzby, 1985).

The Narrative-Literacy Connection

Oral language proficiency is key to the acquisition of fluent reading (Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Roth, Speece, & Cooper, 2002). Studies have shown that aspects of oral language – receptive and expressive vocabulary, and syntactic, semantic and morphological awareness – contribute significantly to reading performance once code-related skills are in place and children are increasingly expected to read to learn (Carlisle, 2003; Catts, Fey, Zhang, & Tomblin, 1999; Sénéchal & LeFevre, 2002; Snow, Burns, & Griffin, 1998). In particular, there is general agreement within the research community that oral language proficiency is an important precursor of reading comprehension (Catts et al., 1999; Dickinson &

There is, however, some discrepancy in the literature with respect to the role oral language plays in the acquisition of skill in decoding. The important role played by phonological awareness in the early stages of learning to read is uncontested (Ehri, Nunes, Willows, Schuster, Yaghoub-Zadeh, & Shanahan, 2001; Share, 1995; Torgesen, Wagner, Lindamood, Rose, Conway & Garvan, 1999). However, arguments have been made that oral language plays a direct and determining role in the acquisition of decoding skill (Dickinson et al., 2003), or that it is, at best, a mediator of the learning process (Sénéchal & Lefevre, 2002; Speece, Roth, Cooper & De La Paz, 1999; Storch & Whitehurst, 2002). These discrepant findings are due, in part, to differences in operational definitions of the literacy constructs and characteristics of the samples under study (NICHD Early Child Care Research Network, 2005). With respect to ELL children, a recent meta-analysis concluded that indices of oral language proficiency explain only 3-4% of the unique variance in word recognition (Geva, 2006).

Relatively few studies have investigated the role of narrative discourse as an index of oral language proficiency in reading achievement and those that do report conflicting results. For example, Feagans and Short (1984) conducted a cross-sectional and longitudinal investigation of the narrative language skills of both reading-disabled and normally achieving 6- and 7-year-olds, relating indices of narrative comprehension, productivity, cohesion, and complexity to reading achievement over time. Although measures of narrative comprehension failed to differentiate the two groups, there were consistent cross-sectional and longitudinal group differences on several measures of narrative production. In a follow-up study, Feagans and Appelbaum (1986) found that a subgroup of children demonstrating specific language impairment with intact narrative
skills obtained significantly higher scores on measures of reading comprehension than did children with impaired narrative ability and intact syntactic and semantic skill. The authors conclude that narrative competence plays a defining role in reading achievement. Finally, Snyder and Downey (1991) found that performance on a story recall task accounted for a significant proportion of variance in the reading comprehension scores of normally achieving children between 8 and 14 years of age, but that it did not make a unique contribution to the reading achievement scores of struggling readers matched for age, sex and SES. However, narrative performance did distinguish the two groups.

Three large-scale studies included a measure of productive narrative discourse in their composite measure of oral language. The specific contribution of the component skills that comprised the oral language measure, however, was not assessed. Catts et al. (1999) followed children from kindergarten through second grade and found that oral language proficiency contributed unique and significant variance to reading achievement, over and above the contribution of phonological processing. A NICHD-funded study of the oral language-literacy connection in a culturally and economically diverse sample, found that pre-kindergarten and kindergarten oral language skills fed directly into code-related skills during first grade and concluded that oral language abilities and code-based skills “reinforce one another in the service of early reading competencies” (p. 440). Conversely, in a study involving children of low SES, Storch and Whitehurst (2002) found a direct association between pre-kindergarten and kindergarten oral and print skills that disappeared after kindergarten. Oral language re-emerged to significantly predict reading comprehension in third and fourth grade.

Roth and colleagues (Roth et al., 2002; Speece et al., 1999) had children generate an emergent reading of a well-known fairy tale and analysed the resultant narratives in terms of
story length and number of episodes. They obtained only non-significant relationships between these indicators of narrative competence and early elementary literacy. However, as Griffin and colleagues (2004) note, it is possible that specific dimensions of oral discourse skill show differentiated patterns of association with later achievement in reading, necessitating broader conceptualizations of narrative skill. They, therefore, investigated several features of the prompted play narratives generated by their sample of 5-year-olds including use of evaluative devices, reference to character states, and plot structure and elaboration. They found some support for their hypothesis: children’s ability to mark the significance of narrated events through the use of evaluation was found to predict reading comprehension skills at age 8, while effective use of discourse macrostructures at age 5 was associated with written narrative skill.

While the role oral language plays in the earliest stages of learning to read is the source of some contention, the research community widely acknowledges a direct relationship between oral language and code-related skills in the preschool years since it is assumed that emergent reading skills are built on language (Kendeou et al., 2009; NICHD, 2005). Yet relatively few studies have explored the relationship between discourse-level skills in preschoolers and concurrent measures of emergent literacy (Curran, 2004). The work of Snow and her colleagues (Dickinson & Snow, 1987; Snow, 1991; Snow et al., 1995) suggests relative independence between emergent literacy skills that relate to print knowledge and narrative competence (defined in terms of a broad range of narrative features) in the preschool years. Lynch et al. (2008), however, found that narrative comprehension, defined in terms of the number of propositions included in a story retell, was related to letter knowledge. Curran (2004) found moderate, statistically significant correlations between 3-year-olds’ inclusion of story grammar elements in their retellings of a fictional story based on a familiar routine, receptive and
expressive language, and name writing. She also found significant moderate correlations between 4-year-olds’ retell performance and word knowledge, receptive language, and name writing.

Cox, Fang, and Otto (1997) report concurrent relations between narrative competence and emergent literacy skill in an economically diverse sample of 4- and 5-year-olds. They found that children whose emergent storybook reading most closely approximated conventional reading produced narratives that demonstrated greater “intuitive” (p. 51) knowledge of literate language features including cohesive ties and literate phrasings. They suggest that familiarity with literate register patterns may be a precursor of conventional literacy achievement.

Further research is needed to clarify the relationship between preschool narrative competence and emergent literacy skill. It is essential that narrative competence be broadly conceptualized in order to consider the possibility of differential patterns of association.

Narrative Competence in Bilingual Children

Within the past decade, researchers – primarily from the fields of linguistics and speech-language pathology – have begun to investigate the development of narrative competence in bilingual children (Verhoeven & Stormqvist, 2001). The issue is an important one given the findings of the National Literacy Panel on Language Minority Children and Youth which reported that language minority children perform on a par with English monolinguals on word-level reading skills but lag behind in text-level skills (Geva, 2006). Studies investigating the development of narrative skill in bilingual children are limited in number, so firm conclusions are difficult to draw as yet. Furthermore, a vast majority of the extant research is restricted to investigations of storytelling ability in American children of Hispanic origin (Fiestas & Peña, 2004; Guttiérez-Clellen, 2002; Montonari, 2005; Pearson, 2002; Uccelli & Páez, 2007). It is
unclear whether the findings related to these children generalize to a broader bilingual population. However, the existing evidence does suggest that for typically developing children, dual language acquisition appears to have minimal impact on narrative skill (Cleave, Girolametto, Chen & Johnson, 2010).

One of three approaches typifies research in the area of bilingual children’s narrative competence. The first focuses on its development within the child’s L1 and L2 (Fiestas & Peña, 2004; Montonari, 2005). For example, Fiestas and Peña compared the narratives generated in English and Spanish by balanced bilinguals between the ages of 4 and 6. No differences were found on measures of productivity, grammaticality, or overall story structure (despite differences in the frequency of including certain elements of story grammar). Gutiérrez-Clellen (2002) compared spontaneous narrative production to story recalls in 33 English-Spanish bilinguals between 7 and 8 years of age. She found cross-lingual differences in narrative structure favouring the L1 (Spanish) on the narrative recall task only. The fact that the children were less proficient in English did not preclude their use of narrative structure on the generation task.

A second approach focuses on predictive patterns across the bilingual child’s two languages (Pearson, 2002; Uccelli & Páez, 2007). For example, Uccelli and Páez (2007) conducted a longitudinal study involving 24 low-SES Spanish-English bilinguals. The children generated a story in both Spanish and English in response to a wordless picture book at the end of kindergarten, and again at the end of grade one. The authors investigated concurrent and predictive patterns of association between expressive vocabulary, narrative productivity (narrative length and lexical diversity), and narrative quality (story structure and story language) across grades and within and across languages. They found significant gains from kindergarten to grade one for all English language measures except narrative length, whereas in Spanish, only
story structure showed significant improvement over time. Kindergarten Spanish story structure demonstrated significant and consistent cross-language associations, and was found to predict first grade English narrative quality even after controlling for the effects of English vocabulary and English narrative productivity. Spanish narrative quality, on the other hand, was best predicted by kindergarten Spanish vocabulary. Pearson (2002) also reported a significant correlation between L1 and L2 story structure, as well as narrative complexity in the narratives generated by English-Spanish bilinguals in grades 2 and 5. She argues that both represent relatively general capabilities that span languages. Language-specific vocabulary knowledge and morpho-syntactic accuracy, on the other hand, were unrelated across languages.

Other researchers have compared the development of narrative competence in monolingual and bilingual children (Lofranco, Peña, & Bedore, 2006; Muñoz et al., 2003; Pearson, 2002). Muñoz and colleagues (Muñoz et al., 2003) conducted a study to determine whether the indicators used to capture monolingual narrative development were appropriate for a low-SES bilingual population. They had 4- and 5-year-old Latino children identified as predominantly English-speaking generate a story in English in response to a wordless picture book. The authors found that measures of syntactic complexity and accuracy (mean length of c-units, proportion of grammatically correct c-units) and episodic structure were the most reliable indicators of development; productivity measures, which have discriminating power for monolingual preschoolers, were found to be less robust because of extreme variability in story length. In their concluding statements, the authors advocate a “child-based approach” (p. 339) to story grammar analysis to account for potential cultural differences in episodic structure. They recommend that propositions be coded as a function of the role they play in the narrative created by the child whether or not they conform to researcher expectations.
In summarizing the findings of a series of studies investigating narrative production in minority language children of a variety of linguistic backgrounds, Berman (2001) emphasized the importance of considering narrative from the perspective of both macro- and microstructure. She argues that all children, regardless of linguistic background, rely on largely similar strategies in conceptualizing, planning, and organizing their narrations. They differ, however, in their command of the means and conventions of linguistic expression required for storytelling performance. Therefore, she concludes, bilingual children may well be expected to display less proficient usage in terms of the morpho-syntactic constructions and lexical choices they deploy in telling a story in their L2 but they can be expected to manifest similar abilities in overall text construction. These discrepancies in performance across domains of competency have been referred to elsewhere as bilingual profile effects (Oller, Pearson & Cobo-Lewis, 2007).

Gender Differences in Narrative

Wolf (1993) wrote that gender, like culture and class, leaves a “deep imprint on what is narrated and how that narration is presented” (p. 43). However, relatively few studies were found that specifically addressed the issue of gender differences in narrative. Those that did, report differences in quality, style, and content in the narratives of girls and boys. For example, Fivush and Haden (2003, as cited in McKeough, 2008) report that child gender influences the quality of parent reminiscing. Parents were found to use a more elaborative style with their daughters than with their sons, which in turn led the daughters to provide longer, more detailed accounts of past events. In their study examining the origins of narrative skill, Uccelli and colleagues (Uccelli et al., 1999) found qualitative differences due to gender in the fictional narratives of their sample of thirty-two 5-year-old children. Overall, the girls’ stories were judged to be superior to those of
the boys, based on outcomes on a composite measure reflecting episodic structure and the use of various elaborative devices, including character dialogue.

In a study examining the development of spontaneous narrative-like conversation in a sample of eight African American toddlers, Sperry and Sperry (1996) found that all children generated more fictional episodes than accounts. They also found that the boys in their sample produced more fictional talk than the girls and that the gender difference was most pronounced between 24 and 30 months. Nicholopoulou (1997) also reported differences in content in the spontaneous stories generated by girls and boys. The girls’ stories focused largely on home and family; a common theme running through their narratives was the maintenance of order. Boys, on the other hand, focused their narrative efforts on stories relating the actions and conflicts of heroic characters. Themes of power and dominance prevailed. The author suggests that these differences in narrative style reflect the processes of identity formation that are particular to each gender.

While gender differences may not have been the primary focus of many studies, they were explored in the preliminary analyses of most studies. A majority of the studies reviewed failed to demonstrate differences in narrative performance due to gender (Cox et al., 1997; Curenton & Justice, 2004; Eisenberg, Ukrainetz, Hsu, Kaderavek, Justice, & Gillam, 2008; Greenhalgh & Strong, 2001; O’Neill et al., 2004; Price et al., 2006), but exceptions were found. For example, Fiorentino and Howe (2004) conducted a study in which children attending daycare were asked to produce narratives in response to standardized story stems using props. The authors found that the girls in their sample produced narratives that contained more units of information and were better organized than their male counterparts. Uccelli et al. (1999) found that the personal narratives girls produced by 5-year-old girls were more likely to include
evaluative information than those of boys. They found no such difference in the children’s fantasy narratives. Nicolopoulou and Richner (2007) report that 3- to 5-year-old girls were more likely to make reference to character mental states than their male counterparts in their fictional narratives, while Wang and Leichtman (2000) report that the narratives of both American and Chinese girls showed a greater tendency toward social engagement and a greater concern with moral correctness and proper behaviour than the narratives of boys.

Finally, gender differences were also found in a study looking at the written narratives of children in grades one to five. Nelson and Van Meter (2007) found differences with respect to productivity measures (total number of words, total number of propositions) in favour of girls. These findings suggest that group differences due to gender should be considered in studies of narrative development.

Rationale of the Present Study

The research literature offers compelling evidence that narrative competence is rooted in social interactions in the preschool years that foster a sense of story structure and familiarity with story language (Peterson & McCabe, 1994; Snow, 1999). Within the contexts of dinnertime conversation, storybook reading and play, for example, children are afforded the opportunity to hear, participate in, and invent stories (Aksu-Koç, 2005; Beals, 2001; Feldman, 2005). With practice comes proficiency. By the time they enter junior kindergarten, children are able to generate oral narratives that begin to resemble their written counterparts (Sulzby, 1985).

The literature offers equally compelling evidence that narrative competence plays a pivotal role in academic achievement, particularly as it relates to higher-level reading and writing in the elementary school years (Snow & Dickinson, 1990; Storch & Whitehurst, 2002). This is because the language of literacy, like the language of narrative, is predominantly
decontextualized (Greenhalgh & Strong, 2001). The mastery of decontextualized language poses a challenge for all children, but poses a particular challenge for children who begin school with little previous exposure to the majority language (Cummins et al., 2005). Yet little research has been done documenting its development in second language (L2) learners (Geva, 2006). The issue is of particular importance in locations such as Toronto and the Greater Toronto Area, where approximately one half of the student population speaks a home language other than English.

Storytelling provides a naturalistic means of evaluating skill in decontextualized language use (Cleave et al., 2010). Since the foundations of storytelling ability are laid in the preschool years, the multilingual kindergarten classrooms of our city and its surrounding area offer an arena in which to explore the early development of L2 narrative competence. This study represents a step toward the establishment of performance indicators for a multi-lingual sample of ELL junior and senior kindergarten children in the area of narrative skill development. Its primary aim was to examine L2 narrative competence across the kindergarten years by comparing the fictional stories generated by a cross-section of EL1 and ELL kindergarten children in response to a wordless picture book. Following the recommendations of various researchers (e.g., Berman, 2001; Griffin, 2004; Pearson, 2002), the narrative samples produced by these children were analysed from the point of view of macrostructure (story structure), microstructure (story language), and the use of evaluative language.

A fictional story generation task was chosen for two reasons. First, fictional stories are considered to be less subject to cultural bias than personal narratives (Heath, 1983). Given the composition of the sample, it was deemed important to minimize confounding effects due to culturally determined differences in storytelling. Second, story generation tasks are free of the
confounding effects of working memory capacity that plague story recall and circumstances did not allow me to add a working memory measure to an already substantial test battery.

The ELL children involved in this study spoke a variety of languages; like their English-language counterparts, all had completed at least one full year of a two-year, half-day kindergarten programme in which the sole language of instruction was English. For most minority-language children, school entry at 4 years of age marks the first sustained exposure to the majority language, so significant ELL-EL1 differences in word knowledge were expected. Therefore, performance on a measure of vocabulary was taken into account in analysing the narratives, and associations between word- and discourse-level skills were investigated. The empirical literature clearly documents age-related differences in storytelling ability, and suggests the possibility of gender differences. As a result, potential grade and gender differences both across and within language groups were also considered. Grade was chosen rather than age in months to test for differences in outcomes over time because it provided a means of controlling for effects due to length of schooling.

A second aim of the study was to examine the relationship between narrative competence and print-based emergent reading skill. The research community widely acknowledges that emergent reading skills are built on language (Kendeou et al., 2009; NICHD, 2005). Yet relatively few studies have specifically explored the relationship between discourse-level skills in kindergarteners and concurrent measures of emergent literacy and those that do report conflicting results (e.g., Snow et al., 1995; Cox et al., 1997). The present study attempted to examine that relationship by investigating possible associations between the three dimensions of oral narrative production (macrostructure, microstructure and evaluative language use) and three
indicators of print-based emergent literacy: letter knowledge, familiarity with the conventions of print, and understanding of the functions of print.

Research Questions

The present study had two overarching goals. The first was to compare the narratives generated by the children identified as non-native speakers of English to those generated by the children whose first language was English. Three dimensions of narrative were considered in the comparison: microstructure, macrostructure, and the use of evaluative language. To investigate the possibility of differences in developmental trends across language groups, grade was included as an independent variable. To investigate the possibility that narrative competence develops differently between boys and girls across language groups, gender was included as a predictor variable.

The second goal of this study was to examine relationships between contemporaneous word-level language skills and discourse competence and between emergent reading achievement and narrative competence.

The research questions guiding the present study can be articulated as follows:

1. How do children’s narratives compare across language (EL1, ELL), grade (JK, SK) and gender with respect to macro- and microstructure and the use of evaluative language?

2. What is the relationship between performance on a concurrent measure of receptive vocabulary (PPVT) and indices of narrative microstructure, macrostructure, and evaluative language use?
3. What is the relationship between performance on concurrent measures of early reading achievement (knowledge of letters, print conventions, and the functions of print), and indices of narrative microstructure, macrostructure, and evaluative language use?

In order to address these questions, a series of regression analyses was conducted through the generalized linear model and binary logistic regression options in SPSS.
Chapter Three: Method

Objectives of the Present Study

The present study attempted to evaluate narrative competence in a multi-lingual group of English Language Learners (ELLs) in the kindergarten years, comparing their performance on a fictional story generation task to the performance of their native English-speaking peers. Age-related differences within and between language groups were explored, as were potential gender differences within and across language and age groups. Associations between narrative competence and general vocabulary knowledge were also investigated to explore possible relationships between discourse and word-level knowledge over the kindergarten period. Finally, associations between narrative competence and indicators of emergent reading skill were investigated to explore possible relationships between discourse level skill and specific components of early reading.

The present study was part of a collaborative research effort involving the Ontario Institute of Studies in Education (University of Toronto), the Peel District School Board, the Dufferin-Peel Catholic District School Board, the Region of Peel Children’s Services, and the Canadian Language and Literacy Research Network. In the fall of 2007, approximately one hundred and fifty families responded to an invitation to participate in a family literacy research project. The invitation was extended to the families of Junior and Senior Kindergarten children in eight publicly funded schools in the Peel District and Dufferin-Peel Catholic District School Boards. The participant school populations mirrored the cultural and linguistic diversity of the larger population of Toronto and its surround. Sixty-one percent (61%) of the families of participant children spoke a language other than English at home. The most common language
The primary goal of the broader research project was to evaluate the effectiveness of the family literacy programme in supporting parent learning with respect to emergent literacy. A battery of child language and literacy measures was administered to all subjects at three points in time (October, February and June). The battery included measures of receptive vocabulary, emergent reading and writing, and narrative comprehension (story retell). Parents were asked to fill out a questionnaire providing information about family demographics. The story generation task was added to the test battery in June.

Intervention Programme Design

The family literacy intervention developed for the purposes of the broader study was an evidence-based programme developed by a team of doctoral students working under the supervision of Dr. Janette Pelletier (Doyle, Hipfner-Boucher & Pelletier, 2008). An extensive review of the research literature in the areas of emergent literacy, family literacy, and adult education was conducted to guide the framework by which the curriculum content and format were developed. A comprehensive rationale was developed based on the literature review, and is included in the curriculum document. Nine ninety-minute sessions were developed devoted to the following topics: children’s literature, shared reading, oral language development, narrative development, environmental print, phonological awareness, alphabet knowledge, early writing, and early numeracy.

The intervention aimed to promote awareness among parents of the important role they play in fostering their children’s early literacy development and to support them in their efforts to incorporate literacy-relevant practices in their family’s daily routines. It was designed to help
parents understand the connection between home-based practices and school-based reading achievement. The curriculum was organized around three key questions for understanding emergent literacy and the influence of the family on its development: *What* are the strands of emergent literacy? *Why* are these strands important? *How* can families and caregivers use this knowledge to support children's emergent literacy development?

Each of the nine sessions was made up of three components: a shared reading time, simultaneous parent-only and child-only breakout sessions, and a family together time. During the shared reading time, the families gathered around a facilitator who modelled best practices while engaging the children in story-related interactions. Following this activity, one facilitator led a parent discussion, while the other facilitator(s) worked in a separate area with the children on activities that supported the development of knowledge and skills in the area of focus. Small group discussions to encourage a sharing of ideas and information among the parents were followed by a large-group discussion to summarize these ideas. Activities to be implemented at home were modelled, and further suggestions for home activities were provided. After about 30 minutes, the parents joined their children to work together on activities that further extended the particular literacy focus of that session.

**Participants**

Narrative samples were collected from a total of 89 children in the first and second weeks of June, the final month of a ten-month school year. Forty-one children were in Junior Kindergarten. At the time of testing, their ages ranged from 4 years, 5 months to 5 years, 4 months with an average age of 4 years, 11 months. Forty-eight children were in Senior Kindergarten. Their ages ranged from 5 years, 5 months to 6 years, 4 months with an average age of 5 years, 11 months. Forty-nine percent of the Junior Kindergarten sample (20 children) was
comprised of children identified by their parents as speakers of a language other than English at home. The remaining 51% was comprised of children for whom English was the home language according to parental reports. In Senior Kindergarten, 25 children (52%) were identified as non-native speakers of English by their parents and 23 (48%) as native English speakers. There were 47 boys in total, 18 in Junior Kindergarten and 29 in Senior Kindergarten. The sample included 42 girls, 23 in Junior Kindergarten and 19 in Senior Kindergarten. Table 3 summarizes the distribution of subjects across language, gender and grade.

Table 3

*Distribution of Subjects by Language, Gender and Grade*

<table>
<thead>
<tr>
<th>Language</th>
<th>Gender</th>
<th>JK</th>
<th>SK</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELL</td>
<td>Boys</td>
<td>9</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>11</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>20</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>EL1</td>
<td>Boys</td>
<td>9</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>12</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>21</td>
<td>23</td>
<td>44</td>
</tr>
</tbody>
</table>

For the purposes of statistical analysis, the children were divided into groups based on grade (Junior or Senior Kindergarten), English language status (EL1 or ELL) and gender.

Sixty-eight percent of the participant children had received the family literacy intervention by the time of testing, while 32% were drawn from the pool of control (no programme) children. The control group was comprised of 16 ELL and 12 EL1 children; the experimental group was comprised of 29 ELL and 32 EL1 children. With respect to grade, the
control group was comprised of 16 JK and 12 SK children while the experimental group was comprised of 25 JK and 36 SK children.

Measures

*Child Receptive and Expressive Language Measures*

Child language and literacy measures were administered to participant children on an individual basis during a thirty-minute test session. With the exception of the story generation data, all data were collected at three points in time (October, February, and June). The story generation task was added to the initial test battery for the June data collection only. It was the final task administered to all children in a separate session lasting approximately five minutes. All testing was carried out during school hours on school premises. The test battery was made up of standardized and experimental measures. The following measures were included in the present study:

*Standardized Child Measures*

1. *Vocabulary.* The Peabody Picture Vocabulary Test – III (Revised) (Dunn & Dunn, 1997). This task was administered according to standardized procedures. Children were asked to look at plates of four drawings and to point to the drawing that represented the word spoken by the examiner. Following Ndlovu and Geva (2008), raw scores representing number of correct responses were used in the analyses since the study sample was not representative of the standardization sample.

2. *Early Reading.* The Test of Early Reading Ability – 3rd Edition (Reid, Hresko & Hammil, 2001) was administered according to standardized procedures. This test provides a measure of three domains of early reading in English: alphabet knowledge, conventions of print, and meaning. The alphabet knowledge subtest assesses children’s letter recognition, and
knowledge of letter names and sounds. The conventions subtest assesses children’s understanding of the conventions of print (such as spelling, punctuation, and capitalization), as well as skill at book handling and familiarity with printed materials. The meaning subtest assesses children’s ability to infer meaning from environmental print, words, sentences, and paragraphs. The TERA-3 provides scores in each of the three areas, in addition to a total raw and standardized score of early reading. Again, raw scores were used in the present analyses since the study sample was not representative of the standardization sample. The authors of the TERA-3 (Reid et al., 2001) report that the test is an appropriate measure of early reading for children between the ages of 3.5 and 8.5 years.

Experimental Child Measure

Story generation task: A wordless picture book was developed for the purpose of eliciting an unprompted story telling. The pictures tell a classic trickster tale (Jarvey et al., 2008). Six illustrations depict a single episode in which one of three characters (a pig) comes to the aid of another character (a hen) to solve a problem created by the third character (a fox). True to the trickster genre, the plot is driven by a character’s intention to deceive; in the case of this particular story, the deception is intended to right a perceived wrong. Following Pelletier and Astington (2004), characters’ thoughts were made explicit by way of illustrations presented within thought bubbles in three of the six story illustrations. Copies of the illustrations appear in Appendix A. All children had repeated exposure to storybooks using thought bubbles to convey character perspective: each of the three test sessions that preceded administration of the story generation task involved a story recall task in which an experimenter narrated a wordless picture book that included illustrations containing thought bubbles. As a result, the book format was familiar to all children.
The layout of the book was as follows: on page one, the child saw a hen contentedly sitting on a nest of eggs. A thought bubble rose from her head in which she pictured herself surrounded by newly hatched chicks. On the following page, a fox appeared. A thought bubble rose from its head in which it pictured itself eating the hen’s eggs. A pig also appeared looking very angry. The third illustration showed the hen and pig collecting rocks in a basket. A thought bubble rose from the pig’s head in which it imagined itself with the hen replacing the eggs in the nest with the rocks. On the following page, the pig and hen were seen doing just that. The fox arrived on the next page and helped itself to an “egg” from the nest. The final page was a fairly ambiguous illustration of the hen standing next to the pig. The ambiguity was intentional. The illustration left considerable room for individual narrator interpretation so that it could be made to fit with the story generated to that point.

The procedure for testing was as follows: The experimenter began by showing the child a copy of the wordless picture book, pointing out the absence of text. The child was told that when books have no words, they use pictures to tell the story. The child was told that s/he would be required to look carefully at the pictures in the book to try and figure out the story they were telling. The experimenter then handed the child the book, and asked that s/he look at it page by page trying to figure out the story s/he thought the pictures told. The child was told to keep the story a secret from the experimenter until all pictures had been seen and s/he had “figured out what was happening”. This initial picture walk was unguided; the experimenter refrained from engaging the child in any book-related talk.

When the child indicated that s/he was ready to tell the story, the experimenter took back the book, opening it to page one. The child was asked to begin telling the story s/he thought the pictures were telling. The experimenter remained silent except to encourage the child to remain
on task or to provide feedback that supported the child’s efforts (“You’re doing a terrific job.”) without influencing the content or structure of the story. The child’s narration was recorded onto a laptop computer for later transcription.

**Demographic Measure**

**Parent Questionnaire:** The parent questionnaire asked parents to provide demographic information about their child (child’s name, gender, date of birth, grade, teacher, the language spoken at home, as well as demographic information about themselves (parent/guardian name, mother’s and father’s education, and current employment). Parents were asked to indicate for both the child’s mother and father the highest level of education attained (elementary school, some high school, high school graduate, some college or university, college graduate, university graduate, graduate degree, or professional degree).

**Data Coding and Scoring Procedures**

In keeping with standard practice, the 89 narratives produced by the participant children were scored with respect to macrostructure, microstructure, and the use of evaluative language (Hughes et al., 1997). The coding schemes devised to evaluate these dimensions of narrative were as follows:

**Coding and Scoring Procedures for Macrostructure**

**Coding and Scoring Procedures for Story Grammar**

The narrative samples were scored on the basis of the presence (+1) or absence (0) of each of the story grammar elements defined in Table 4. The story illustration that was intended to depict each element is described. However, bearing in mind concerns expressed by Muñoz et al., (2003) and O’Neill et al., (2004), a child-based rather than a text-based approach was
adopted in scoring story grammar. As such, children were given credit for the inclusion of story grammar elements that were particular to the story they chose to tell; in this way, children were not evaluated on the basis of their ability to match the story intended by the experimenter, but on their ability to generate a well-structured story.
**Table 4**

*Coding conventions for story grammar (adapted from John et al., 2003)*

<table>
<thead>
<tr>
<th>Story Grammar Element</th>
<th>The Hen, the Fox and the Pig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Setting: introduces the protagonist and other characters, provides background information, sets locale and time, describes personal states, traits, habitual actions or dispositions</td>
<td>A mother hen is sitting on her eggs, dreaming about the chicks that will soon hatch.</td>
</tr>
<tr>
<td>2. Initiating Event: an event that changes the state of affairs in the environment, causing a subsequent response from the protagonist. The function of the initiating event is to evoke and internal response in the protagonist.</td>
<td>A fox arrives. He is thinking about eating the hen’s eggs.</td>
</tr>
<tr>
<td>3. Internal Response: includes affective or emotional responses, goals or desires, and thoughts or cognitions. The internal responses motivate the protagonist to make an attempt to satisfy goals or desires.</td>
<td>An angry pig is watching the fox. The pig decides to help the hen save her eggs.</td>
</tr>
<tr>
<td>4. Attempt: represents the overt actions the protagonist performs in order to satisfy goals. The protagonist’s attempt results in some kind of direct consequence.</td>
<td>The pig and the hen collect stones and place them in a basket. A thought bubble arises from the pig’s head in which she pictures herself with the hen, replacing the hen’s eggs with the stones. The pig and the hen carry out their plan; they replace the eggs in the nest with the stones.</td>
</tr>
<tr>
<td>5. Consequence: indicates whether or not the protagonist attained the goal and contains events that signify changes that result from the attempt. The direct consequence also initiates or causes a reaction on the part of either the protagonist or other characters.</td>
<td>The fox steals an “egg” and realizes it has been fooled.</td>
</tr>
<tr>
<td>6. Reactions: indicate frequently how the protagonist feels, thinks, or behaves in response to the direct consequences, but they may also specify how other characters are affected by the direct consequence.</td>
<td>The pig and the hen are happy because they have fooled the fox.</td>
</tr>
</tbody>
</table>

**Coding and Scoring Procedures for Story Structure**

Each narrative received an overall story structure score ranging from 1 (Descriptive Sequence) to 6 (Complete Episode), as presented in Table 2. Narratives that did not fit the descriptions below were given a score of 0 and were excluded from the analyses. Two stories,
both produced by JK ELL boys were assigned scores of 0. The binary decision tree that appears in Figure 1 was used as a guide for determining the story structure level. Sample stories scored at each of the 6 levels are given in Appendix B.

*Figure 1. Binary Decision Tree for Determining Story Structure Levels*

```
Does the story have a temporally related sequence of events?  
  Yes  
  No  

Does the story have a causally related sequence of events?  
  Yes  
  No  

Does the story imply goal-directed behaviour?  
  Yes  
  No  

Is planning or intentional behaviour explicit?  
  Yes  
  No  

Can an initiating event, attempt and consequence be identified?  
  Yes  
  No  

Descriptive Sequence  
Action Sequence  
Reactive Sequence  
Abbreviated Episode  
Incomplete Episode  
Complete Episode
```
The coding and scoring procedures related to narrative microstructure are summarized in Table 5. The variable names and types (continuous or categorical) are given, as well as a brief description of each.
Table 5

*Coding and Scoring Conventions for Microstructure*

<table>
<thead>
<tr>
<th>Variable Name and Type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of words</td>
<td>The total number of words in the child’s spoken narrative. A measure of productivity.</td>
</tr>
<tr>
<td>Continuous</td>
<td></td>
</tr>
<tr>
<td>Total number of different words</td>
<td>The total number of different words in the child’s spoken narrative. Each unique word was counted once. Variations in grammatical form (e.g., gerunds, past participles) were not considered unique. Contractions were counted as 2 words. A measure of lexical diversity.</td>
</tr>
<tr>
<td>Continuous</td>
<td></td>
</tr>
<tr>
<td>Total number of c-units</td>
<td>The raw number of c-units in the child’s spoken narrative. A c-unit is defined as an independent clause with all of it modifiers in the form of coordinate, subordinate, and embedded clauses. Following Craig et al., (2003) successive main clauses linked by simple coordinate conjunctions (<em>and, but, or</em>) were segmented into c-units if the second clause included a subject. When the second clause elliptically omitted the subject, the two clauses were considered a single c-unit.</td>
</tr>
<tr>
<td>Continuous</td>
<td></td>
</tr>
<tr>
<td>Mean length of c-units in words</td>
<td>The average length of c-units in words in the child’s spoken narrative. The number and mean length of c-units are generally considered to be measures of syntactic complexity (Puranik, Lombardino &amp; Altmann, 2007).</td>
</tr>
<tr>
<td>Continuous</td>
<td></td>
</tr>
<tr>
<td>Complex c-unit present/absent</td>
<td>A score of 1 indicated the presence of at least 1 complex c-unit (a c-unit containing an independent clause and at least one dependent clause). A score of 0 indicated the absence of a complex c-unit.</td>
</tr>
<tr>
<td>Categorical</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Justice et al., 2006
The variables COORD and SUBORD were further analysed in terms of type (additive, temporal, causal, adversative) (Halliday & Hassan, 1976). A summary of the coding and scoring conventions for the variables related to the subtypes of conjunctions is presented in Table 6. On occasion, conjunctions were conjoined: and then was scored only once, as a temporal conjunction, so then was scored only once as a causal conjunction.

<table>
<thead>
<tr>
<th>Variable Name and Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Subordinating conjunction</em></td>
<td><strong>Present/absent</strong> Categorical                                                                                              A score of 1 indicated the presence of at least one subordinating conjunction (<em>since, unless, until, when, where, also, besides, then, still, that, while, why, after, as, because, if</em>). A score of 0 indicated the absence of a subordinating conjunction.</td>
</tr>
<tr>
<td><em>Proportion of c-units that are grammatically correct</em></td>
<td>Continuous</td>
</tr>
<tr>
<td></td>
<td>Calculated by dividing the number of c-units that were grammatically correct by the total number of c-units in the narrative. Following Muñoz et al., (2003), grammatically acceptable c-units were broadly defined as utterances that were produced in a manner that is typically acceptable by the majority of speakers in the child’s linguistic environment.</td>
</tr>
<tr>
<td><em>Number of target nouns</em></td>
<td>Continuous</td>
</tr>
<tr>
<td></td>
<td>Following Guttiérrez-Clellen (2002), eight nouns were identified as being essential to a complete narration of the wordless picture book (hen, fox, pig, eggs, chicks, basket, stones, nest). The number of target nouns included in each narrative was tallied. Semantic approximations were considered acceptable (for example, the use of the word <em>wolf</em> in place of <em>fox</em> or <em>chicken</em> in place of <em>hen</em>).</td>
</tr>
</tbody>
</table>
Table 6

Coding and Scoring Conventions for Subtypes of Conjunctions

<table>
<thead>
<tr>
<th>Variable Name and Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additive conjunction present/absent Categorical</td>
<td>A score of 1 indicated the presence of at least one additive conjunction (and, also). A score of 0 indicated the absence of an additive conjunction.</td>
</tr>
<tr>
<td>Temporal conjunction present/absent Categorical</td>
<td>A score of 1 indicated the presence of at least one temporal conjunction (then, next, now). A score of 0 indicated the absence of a temporal conjunction.</td>
</tr>
<tr>
<td>Causal conjunction present/absent Categorical</td>
<td>A score of 1 indicated the presence of at least one causal conjunction (because, so). A score of 0 indicated the absence of a causal conjunction.</td>
</tr>
<tr>
<td>Adversative conjunction present/absent Categorical</td>
<td>A score of 1 indicated the presence of at least one adversative conjunction (but). A score of 0 indicated the absence of an adversative conjunction.</td>
</tr>
</tbody>
</table>

Coding Conventions for Expressive Elaboration

A single dimension of expressive elaboration was investigated: evaluative language. Evaluation describes the many ways the narrator can transmit character perspective. The coding and scoring procedures related to evaluative language are summarized in Table 7. The variable names and types (continuous or categorical) are given, as well as a brief description of each.
Table 7

**Coding and Scoring Procedures for Evaluative Language**

<table>
<thead>
<tr>
<th>Variable Name and Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modifiers present/absent</td>
<td>A score of 1 indicated the presence of at least one modifier (adjective or adverb). A score of 0 indicated the absence of a modifier. Examples: that was a terrible problem; the pig is dreaming of instead of rocks, it is coins.</td>
</tr>
<tr>
<td>Expressions of intent present/absent</td>
<td>A score of 1 indicated the presence of at least one expression of intent. A score of 0 indicated the absence of an expression of intent. Examples: the fox is thinking of something that he would try and get the eggs; the pig decided to go to the hen and help her put the eggs into the basket</td>
</tr>
<tr>
<td>Metacognitive verbs present/absent</td>
<td>A score of 1 indicated the presence of at least one metacognitive verb. A score of 0 indicated the absence of a metacognitive verb. Examples: the fox wish he ate the eggs; wolf thought it was a egg but it is not</td>
</tr>
<tr>
<td>Emotional state terms present/absent</td>
<td>A score of 1 indicated the presence of at least one emotional state term. A score of 0 indicated the absence of an emotional state term. Examples: and pig and hen were both sad; the chicken was so happy; then she get angry</td>
</tr>
<tr>
<td>Physical state terms present/absent</td>
<td>A score of 1 indicated the presence of at least one physical state term (e.g., tired). A score of 0 indicated the absence of a physical state term. Examples: the pig was tired to walk; he was trying to eat it and then he was sick</td>
</tr>
<tr>
<td>Dialogue present/absent</td>
<td>A score of 1 indicated the presence of character dialogue (implicit or indicated with a semantic marker). A score of 0 indicated the absence of dialogue. Indirect reports of speech (e.g., “She said that…”) were not coded. Examples: “No, that is my basket and it have something in there”; “I have a feeling that maybe fox would get one of my eggs.”</td>
</tr>
</tbody>
</table>
Preliminary Analyses

A series of preliminary analyses was conducted examining potential differences in performance on all predictor variables based on programme status, grade, gender, and language. TERA and PPVT data were missing for two children, both of whom were JK ELL boys. As a result, all analyses were based on a sample of 87 children.

A series of independent samples t-tests was conducted to evaluate the effects of programme participation on PPVT and TERA outcomes. Significant differences between the programme and control groups were found on the conventions subtest of the TERA ($t(85) = -2.48, p = .01$) and the TERA total score ($t(85) = -2.17, p = .03$). Children who had received the family literacy intervention outperformed their non-programme counterparts on these measures of early literacy, indicating positive intervention effects.

Analyses of variance were conducted on the continuous predictor variables (PPVT, TERA Alphabet, TERA Conventions, TERA Meaning, and TERA Total Score) to examine group differences based on grade (JK/SK), language (ELL/EL1) and gender. PPVT and TERA raw scores were used in the analyses. The means and standard deviations by gender, grade, and language for the PPVT and TERA subscales and full scale are given in Table 8. There were main effects of language and grade on the PPVT raw scores, as well as a grade by language interaction. The vocabulary scores of the ELL children were significantly lower than those of their EL1 peers ($F(1,85) = 31.20, p < .001$) and the vocabulary scores of the JK children were significantly lower than those of their SK counterparts ($F(1,85) = 15.29, p < .001$). The grade by
language interaction revealed that the difference in scores between the ELL and EL1 children
was greater in SK than in JK ($F(1,85) = 4.25$, $p < .05$).
### Table 8

Descriptive Statistics for PPVT and TERA by Gender, Grade and Language

<table>
<thead>
<tr>
<th>Gender</th>
<th>Grade</th>
<th>Language</th>
<th>PPVT</th>
<th>TERA_A</th>
<th>TERA_C</th>
<th>TERA_M</th>
<th>TERA_T</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SD</td>
<td>SD</td>
<td>SD</td>
<td>SD</td>
<td>SD</td>
</tr>
<tr>
<td>Boys</td>
<td>JK</td>
<td>ELL 9 (n=7)</td>
<td>59.71</td>
<td>12.14</td>
<td>6.28</td>
<td>6.57</td>
<td>25.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EL1 (n=9)</td>
<td>68.78</td>
<td>13.55</td>
<td>6.33</td>
<td>9.22</td>
<td>29.11</td>
</tr>
<tr>
<td></td>
<td>SK</td>
<td>ELL (n=15)</td>
<td>71.47</td>
<td>20.73</td>
<td>10.44</td>
<td>10.40</td>
<td>41.53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EL1 (n=14)</td>
<td>95.57</td>
<td>23.57</td>
<td>12.07</td>
<td>11.85</td>
<td>46.86</td>
</tr>
<tr>
<td>Girls</td>
<td>JK</td>
<td>ELL (n=11)</td>
<td>63.09</td>
<td>16.64</td>
<td>7.91</td>
<td>7.91</td>
<td>32.45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EL1 (n=12)</td>
<td>79.50</td>
<td>15.58</td>
<td>7.50</td>
<td>10.08</td>
<td>33.17</td>
</tr>
<tr>
<td></td>
<td>SK</td>
<td>ELL (n=10)</td>
<td>64.70</td>
<td>20.70</td>
<td>12.20</td>
<td>10.80</td>
<td>43.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EL1 (n=11)</td>
<td>95.89</td>
<td>21.89</td>
<td>11.55</td>
<td>11.11</td>
<td>44.55</td>
</tr>
</tbody>
</table>

Note: PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_M = Meaning Subtest; TERA_C = Conventions Subtest; TERA_T = Total Score
Significant grade differences were found on all subtests of the TERA, as well as the TERA total raw score in favour of the SK children. Not surprisingly, children in their second year of kindergarten outperformed those in their first year on the TERA Alphabet \((F(1,85)=30.01, p<.001)\), TERA Conventions \((F(1,85)=36.36, p>.001)\), and TERA Meaning Subtests \((F(1,85)=7.24, p<.01)\), as well as the TERA Total \((F(1,85)=30.57, p<.001)\). No interaction effects were found.

A series of Mann-Whitney U tests (a non-parametric alternative to the t-test for independent groups) was conducted to evaluate the effects of programme participation on all narrative measures. A non-parametric test was chosen because the narrative data showed significant positive skews. No significant differences between the control and experimental groups were found on any of the narrative measures. As a result, the two groups were collapsed for the purposes of subsequent analyses.

Mother’s education level (MED) data was found to be missing for 21 (24%) of the participant children (11 ELL and 10 EL1 children). Mother’s education level was believed to be a potential predictor of outcome based on the findings of previous studies (Aksu-Koç, 2005; Dickinson & Tabors, 2001). Bivariate correlations were conducted as a crude test of the association between maternal education and all narrative outcomes. Maternal education was found to correlate significantly with COMPLEX (complex c-unit present/absent) \((r = .23, p < .05)\). As a result, maternal education level was included as a covariate in exploratory analyses of COMPLEX for the 67 children for whom MEd data were available. For these purposes, a categorical variable labelled MED Unknown/Known (MEDU_K) was created, with MED_UUnknown coded as 0 and MED_Known coded as 1.
Finally, independent samples t-tests revealed no significant differences in age between the ELL and EL1 groups ($t(85) = -0.14, ns$).

**Generalized Linear Modelling**

Initial exploratory analyses revealed positive skews in the distributions of the majority of the continuous dependent variables under study. Therefore, it was not possible to conduct regression analyses using general linear modelling (GLM) since general linear models assume a normally distributed dependent variable with a linear relationship to the predictor variable(s). As a result, all analyses involving continuous dependent variables were run through the generalized linear model (GZLM) option in SPSS 17. GZLM allows the researcher to specify the distribution of the response variable. For the few variables that were normally distributed, a linear probability distribution was specified. For continuous variables with a positive skew, either an Inverse Gaussian or Gamma probability distribution was specified, depending on the particular shape of the distribution. GZLM also allows the researcher to specify the link function by which the response variable is to be modelled. A link function is the mathematical means by which a linear relationship is maintained between coefficients and predictors on the one hand, and the dependent variable on the other (Garson, 2009a). The link function chosen for all of the analyses involving a continuous response variable was an identity link (i.e., prediction was based directly on the value of the dependent variable with no transformation).

Two goodness of fit statistics were reported based on the regression analyses conducted through GZLM. The first is a likelihood ratio chi-square, the value of which reflects the likelihood of a match between predicted and observed patterns in the data. The larger the likelihood value, the better the fit of the model to the data. A significant likelihood ratio allows the researcher to reject the null hypothesis that the coefficients in the regression equation do not
differ from 0 (as predicted in the null model). The second goodness of fit statistic was the Akaike Information Criteria corrected for sample sizes (AICc). The absolute value of AICc has no intuitive value, except by comparison with another AICc, in which case the lower AICc reflects the better fitting model (Garson, 2009a). Generally speaking, comparisons are made between the AICc values associated with two or more hierarchical models. Because of the exploratory nature of the present study, however, the AICc values that were compared are those of the null model and the model of interest.

Initial examination of descriptive statistics associated with a number of continuous dependent variables related to narrative microstructure and use of evaluative language also revealed very small means with relatively large standard deviations. This was not the case for any of the measures of productivity. This finding suggested that the comparison of interest in such cases was not one based on mean frequency scores, but on the basis of the presence or absence of at least one exemplar of the particular feature under investigation. Inclusion of at least one exemplar was deemed to be sufficient evidence of competency in light of the age of the participants and the brevity of the stories that were generated. As a result, all variables relating to microstructure (other than indices of productivity) and evaluative language were dichotomized and scored as present (a score of 1) or absent (a score of 0). The individual elements of story grammar were scored in the same way. All analyses involving categorical dependent variables were run through the binary logistic regression option in SPSS 17. A brief introduction to binary logistic regression follows.

Binary Logistic Regression

Binary logistic regression is used when the dependent variable under study is dichotomous. The independent variables entered into the regression equation may be either
continuous or categorical. For the purposes of the present analyses, dichotomous dependent variables were coded as 1, indicating presence or inclusion of a particular narrative feature, or 0, indicating absence or exclusion of that feature. Cases coded as 1 are referred to as the response group, whereas cases coded as 0 are referred to as the control group. The categorical independent variables – grade, language, and gender – were also coded as 0 (JK, ELL, and boys) and 1 (SK, EL1, and girls). The ultimate objective of logistic regression is to predict the probability or likelihood of a case’s membership in the response group controlling for category of membership on the dichotomous predictor variables and for the effect of the continuous predictors (Meyers, Gamst & Guarino, 2006).

Three concepts are central to an understanding of logistic regression: probability, odds, and odds ratio. Probability is the likelihood of achieving a particular outcome. It is calculated by dividing the frequency of occurrence of that outcome by the total number of possible occurrences. In the present study, for example, the probability of including a complex C-unit in the narrative was calculated by dividing the number of narratives in which a complex C-unit was found by the total number of narratives. In logistic regression, probabilities are transformed into odds. Odds represent the probability of the occurrence of a particular event or outcome ($p$) divided by the probability of its non-occurrence ($p/1 – p$). An odds ratio is a way of comparing whether the probability of a certain event is the same for two groups. It is calculated by dividing the odds of the event occurring for one group by the odds of the event occurring for the second group (Meyers et al., 2006).

In logistic regression, the impact of predictors on the dependent variable is expressed in terms of odds ratios (Garson, 2009b). In the case of categorical independent variables, coefficients are used to calculate the probability (the odds ratio) of achieving the outcome coded
1 for a case that is in the predictor level coded 1, relative to a case that is in the predictor level coded 0. In the case of continuous independent variables, the odds ratio represents the increase or decrease in odds of being in one outcome category when the value of the predictor increases by one unit (Tabachnik & Fidell, 2001). An odds ratio greater than 1 represents the increase in odds of an outcome of 1 (the response category) with a 1-unit increase in the predictor; an odds ratio less than 1 represents the decrease in odds of an outcome of 1 with a 1-unit change in the predictor. In a multivariate model, the odds ratio is adjusted to control for the effect of other variables in the model.

Logistic regression uses maximum likelihood estimation to determine coefficients after transforming the dependent variable into a logit variable. A logit is the natural log of the odds of the dependent occurring or not occurring (Garson, 2009b). The goal of maximum likelihood estimation (MLE) is to determine the direction and magnitude of coefficients applied to a combination of predictors that maximize the likelihood of obtaining the observed outcome frequencies (Tabachnik & Fidell, 2001). MLE seeks to maximize the log likelihood, a statistic that reflects how likely it is (the log odds) that the observed values of the dependent variable may be predicted from the observed values of the independent variables (unlike ordinary least squares (OLS) that is used in linear regression and that seeks to minimize the sum of squared distances of the data points to the regression line). Logistic regression, therefore, calculates changes in the log odds of membership in the dependent variable code of 1 given a particular combination of scores on the predictors. It does not calculate changes in the dependent variable itself, as does OLS regression (Garson, 2009b).

If predicted group membership is symbolized as $g_{\text{pred}}$, the regression equation in logistic regression is as follows:
\[ g_{\text{pred}} = \ln (\text{odds}) = a + b_1x_1 + b_2x_2 + \ldots b_nx_n \]

where \(a\) is the constant, \(b\) the parameter coefficient and \(x\) the value of the independent variable for \(n\) cases. However, because they are difficult to interpret, log odds must be transformed into predicted probabilities by applying an anti-log function, the exponential function, where \(e = 2.7182\).

\[ p_{\text{pred}} = \frac{e^{g_{\text{pred}}}}{1 + e^{g_{\text{pred}}}} \]

In the present study, logistic regression analyses were conducted to determine the likelihood of children including specific narrative features in their stories, based on grade, language status, and gender, and controlling for vocabulary knowledge (PPVT) and early literacy achievement (TERA). The regression equation predicting inclusion of a given feature for each case would be the following:

\[ p_{\text{pred of inclusion}} = \frac{e^A + \beta_{\text{(gender)}} + \beta_{\text{(grade)}} + \beta_{\text{(language)}} + \beta_{\text{(PPVT)}} + \beta_{\text{(TERA)}}}{1 + e^A + \beta_{\text{(gender)}} + \beta_{\text{(grade)}} + \beta_{\text{(language)}} + \beta_{\text{(PPVT)}} + \beta_{\text{(TERA)}}} \]

Logistic regression computes a number of absolute measures of model validity (Meyers et al., 2006). These include the likelihood ratio test used to test the hypothesis that the set of independent variables improve prediction of the dependent variable at a level above chance. A log likelihood is calculated by raising the percentage of 1’s in the sample to the power of \(N\), then multiplying that value by -2. The resultant -2 log likelihood (-2LL) is distributed as a chi-square and as such, can be used to assess whether or not at least one of the independent variables is statistically different from zero.

The Nagelkerke pseudo \(R^2\) is defined as \((1 - L_{\text{full}})/L_{\text{reduced}}\) where \(L_{\text{full}}\) represents the log likelihood for the full model and \(L_{\text{reduced}}\) the log likelihood of the constant-only model (Meyers et
al., 2006). While $R^2$ in ordinary least squares regression accounts for percent of variance explained, the pseudo $R^2$ generated in logistic regression is one of two measures of effect size. The second measure of effect size, correct classification of cases, indicates the degree to which predicted outcomes match observed outcomes. Classification tables allow one to evaluate the model’s sensitivity (correct positive prediction) and specificity (correct negative prediction) (Agresti, 2007).

Garson recommends the Hosmer & Lemeshow chi-square of goodness of fit test for assessing model fit (Garson, 2009b). A Hosmer & Lemeshow statistic greater than .05 allows the researcher to reject the null hypothesis that there is no difference between the observed and predicted outcomes.

Finally, in order to assess the statistical significance of the unique contribution of each coefficient to the model, logistic regression uses the Wald chi-square.

The statistics to be reported for each binary logistic regression analysis are the following: the Wald chi-square for the model with its associated $p$ value, the Nagelkerke $R^2$, the Hosmer & Lemeshow chi-square, the classification tables for the null and final models, and the Wald chi-square for individual parameter effects.

**Exploratory Model-Building Approach to Regression Analyses**

For all regression analyses, an exploratory model-building approach was taken. The approach starts with fitting a maximal model with all factors, interactions and covariates of interest. Statistically insignificant effects were eliminated one by one, beginning with the highest-order interactions. The effect of removing each effect on model goodness of fit was evaluated. Improvement in goodness of fit is demonstrated by a decrease in the value of the AIC
statistic in successive models. Following Anderson, Burnham and Thompson (2000), the decision to retain an effect was based on its influence on the AIC statistic and not on its associated $p$ level. The process of removing parameters was repeated until a parsimonious model was achieved. Sample size limitations placed constraints on the complexity of the model originally specified. Possible interactions between factors and covariates were not included in the full model. In cases where an interaction was found to contribute to the predictive value of the model, its constituent main effects were retained in the model in order to facilitate interpretation of the results (Agresti, 2007).

Outliers are cases that exert undue influence on the fit of the regression model. For each regression, standardized residuals were calculated. Cases with a standardized residual greater than 3 were considered outliers and were deleted from the analysis.

To avoid problems due to multicollinearity in the regression analyses, the bivariate correlations between all possible pairs of predictor variables were examined. Not surprisingly, the TERA subtests were found to correlate highly among themselves and with the TERA total score. As a result, all analyses were initially run entering the TERA total score. Then a separate analysis was run entering the TERA subtest score that correlated most highly with the dependent variable. The results of the two analyses were compared and the best model retained. In cases where more than one TERA score correlated significantly with the dependent variable, multiple analyses were run, their results compared, and the best model reported.

Microstructure Variables

Descriptive statistics for all continuous microstructure variables are presented in Table 9. Tables 10 and 11 show the correlations among all dependent measures of microstructure and the independent variables. Regressions results for each variable follow the correlational tables.
Table 9

*Descriptive Statistics for Continuous Microstructure Variables*

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Note: \( N = 87. \) TNW = Total Number of Words; NDW = Number of Different Words; NTARN = Number of Target Nouns; NC-U = Number of C-Units; MLC-UW = Mean Length of C-Units in Words; PC-UGC = Proportion of Grammatically Correct C-Units
Table 10

### Bivariate and Point Biserial Correlations Among Predictor Variables and Indices of Productivity and Complexity

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Note: N=87. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; TNW = Total Number of Words; NC-U = Number of C-Units; NTARN = Number of Target Nouns; NDW = Number of Different Words; MLC-UW = Number of C-Units in Words; COMPLEX = Number of Complex C-Units; PC-UGC = Proportion of Grammatically Correct C-Units

**p < .01, *p < .05
Table 11

*Bivariate and Point Biserial Correlations Among Predictor Variables and Indices of Cohesion*

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</table>

Note: N=87. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; COORD = Coordinating Conjunction Present/Absent; SUBORD = Subordinating Conjunction Present/Absent; ADD = Additive Conjunction Present/Absent; TEMP = Temporal Conjunction Present/Absent; CAUSAL = Causal Conjunction Present/Absent; ADV = Adversative Conjunction Present/Absent
For the sake of brevity, only the table summarizing the parameter estimates for the final regression model for each dependent variable appears in the body of this chapter (provided more than 1 parameter was retained in the final model. In keeping with standard practice, no summary table appears in cases where a single predictor variable was retained). Correlational matrices for all variables by language group appear in Appendix C. All other tables of interest (diagnostics tables, classification tables) appear in Appendix D. In cases where either PPVT or TERA were retained in a final model, potentially masking group differences based on language or grade, supplementary analyses (chi-squares, Mann-Whitney U tests) were conducted. The results of these analyses appear in Appendix E.

Indices of Productivity

*Total Number of Words*

The regression for total number of words was run using a Gamma probability distribution with an identity link function. The main effects of grade ($\chi^2 (1, N = 85) = 5.87, p < .05$) and gender ($\chi^2 (1, N = 85) = 13.00, p = .000$) were significant. A significant gender by grade effect was also found ($\chi^2 (1, N = 85) = 6.87, p < .01$). PPVT was retained since its removal had an adverse effect on the goodness of the model fit ($\chi^2 (1, N = 85) = 2.84, p = .092$). The parameter estimates for the final model are given in Table 12.
Table 12

**GZLM Regression Results Predicting Total Number of Words**

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</table>

$N = 85$

The results for grade indicated that the narratives of the JK children contained significantly fewer words than the narratives of the SK children. The older children told stories that were 65.11 words on average, compared with 58.77 words for the younger children. The results for gender indicated that the boys’ narratives were significantly shorter in length than those of the girls. Their stories averaged 56.68 words, while those of the girls averaged 69.68 words. With respect to the grade by gender interaction, the SK girls were found to tell stories that were significantly longer than those of all other children. Their narratives averaged 79.89 words, compared with 59.48 words for the JK girls, 57.75 words for the JK boys, and 55.61 words for the SK boys.

**Number of Different Words**

The regression for number of different words was run using an Inverse Gaussian probability distribution with an identity link function. The main effects of grade ($\chi^2 (1, N = 86) = 5.51, p < .05$) and TERA Conventions ($\chi^2 (1, N = 86) = 20.05, p = .000$) were significant. The gender by language effect was retained since its removal adversely affected the model’s goodness of fit ($\chi^2 (1, N = 86) = 3.18, p = .075$). The parameter estimates for the final model are presented in Table 13.
With respect to grade, the SK children were found to include a significantly greater number of different words in their narratives than the JK children. The SK children included an average of 31.89 different words in their stories, compared with 27.45 for the younger JK children. The median for SK was 29.5 while the median for JK was 27.0. As for the gender by language interaction, the ELL boys were found to include fewer different words in their narratives than all other children. The stories told by the ELL boys averaged 24.73 different words, compared with 29.54 for those of the EL1 boys, 31.81 for those of the EL1 girls and 33.90 for those of the ELL girls.

Number of C-Units

The regression for number of c-units was run using an Inverse Gaussian probability distribution with an identity link function. The main effect of gender ($\chi^2 (1, N = 85) = 7.26, p < .01$) was significant. Grade ($\chi^2 (1, N = 85) = 3.78, p = .052$) and TERA Total ($\chi^2 (1, N = 85) = 3.30, p = .069$) were retained since their removal adversely affected the model’s goodness of fit. The parameter estimates for the final model are presented in Table 14.
The results for gender indicated that the narratives generated by the boys contained significantly fewer c-units than the narratives generated by the girls ($p < .01$). On average, the boys’ stories were 7.48 c-units in length, while the girls’ stories averaged 8.61 c-units. The results for grade indicated a developmental trend with respect to the number of c-units in the children's narratives; the older SK children produced narratives that contained 8.20 c-units on average compared with 7.82 c-units for the JK children’s narratives. A more telling statistic given the positive skew in the data is the median score that stood at 7 for the JK children and 8 for the SK children.

**Number of Target Nouns**

The regression for number of target nouns was run using a linear probability distribution with an identity link function. The main effect of PPVT ($\chi^2 (1, N = 86) = 4.72, p < .05$) was significant. The main effect of TERA Total was retained since its removal adversely affected the model’s goodness of fit ($\chi^2 (1, N = 86) = 3.33, p = .068$). The parameter estimates for the final model are presented in Table 15.
Table 15

**GZLM Regression Results Predicting Number of Target Nouns**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>S.E.</th>
<th>95% Confidence Interval</th>
<th>Hypothesis Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>3.48</td>
<td>.46</td>
<td>2.57 - 4.39</td>
<td>Wald $\chi^2$</td>
</tr>
<tr>
<td>PPVT</td>
<td>.02</td>
<td>.01</td>
<td>0.00 - 0.03</td>
<td>$\chi^2$</td>
</tr>
<tr>
<td>TERA Total</td>
<td>.02</td>
<td>.01</td>
<td>0.00 - 0.04</td>
<td>$\chi^2$</td>
</tr>
</tbody>
</table>

$N = 86$

Indices of Language Complexity and Grammaticality

*Mean Length of C-Units in Words*

The regression for mean length of c-units in words was run using a linear probability distribution with an identity link function. The main effects of gender ($\chi^2 (1, N = 85) = 4.48, p < .05$) and TERA Conventions ($\chi^2 (1, N = 85) = 24.59, p = .000$) were significant. A gender by grade interaction was also significant ($\chi^2 (1, N = 85) = 4.68, p < .05$). The parameter estimates for the final model are presented in Table 16.

Table 16

**GZLM Regression Results Predicting Mean Length of C-Units**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>S.E.</th>
<th>95% Confidence Interval</th>
<th>Hypothesis Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>5.97</td>
<td>.65</td>
<td>4.70 - 7.24</td>
<td>Wald $\chi^2$</td>
</tr>
<tr>
<td>Grade</td>
<td>-.40</td>
<td>.44</td>
<td>-1.27 - .47</td>
<td>$\chi^2$</td>
</tr>
<tr>
<td>Gender</td>
<td>-.82</td>
<td>.38</td>
<td>-1.57 - .06</td>
<td>$\chi^2$</td>
</tr>
<tr>
<td>Gender*Grade</td>
<td>1.26</td>
<td>.58</td>
<td>.12 - 2.40</td>
<td>$\chi^2$</td>
</tr>
<tr>
<td>TERA Conventions</td>
<td>.21</td>
<td>.04</td>
<td>.13 - .30</td>
<td>$\chi^2$</td>
</tr>
</tbody>
</table>

$N = 85$

The results for gender indicated that the girls produced c-units that were significantly longer than those produced by the boys. The average length of c-unit (in words) for the girls was 7.81; the average length of c-unit for the boys was 7.49. The gender by grade interaction was in
favour of the SK girls who averaged 8.51 words per c-unit, compared with 7.54 words for the SK boys, 7.41 words for the JK boys and 7.21 words for the JK girls.

**Complex C-Units**

To evaluate the impact of maternal education on the inclusion of a complex c-unit, a sequential logistic regression was conducted with maternal education entered in the first step, followed by grade, gender, language, PPVT and TERA Total in the second step. In this way, the unique contribution of maternal education, over and above all other predictors, could be determined. Maternal education was found to make no contribution to the prediction of group membership ($\chi^2 (1, N = 67) = 1.26, p = .262, NR^2 = .02$). Furthermore, a chi-square test for independence (with Yates Continuity Correction) indicated no significant association between inclusion of a complex c-unit and the availability of mother’s education data, $\chi^2 (1, N = 87) = 1.95, p = .16$), suggesting that the finding reported above could be generalized to the entire sample. As a result, mother’s education was dropped from the analyses.

A direct logistic regression analysis was performed to assess prediction of membership in one of two categories of outcome (complex c-unit present/complex c-unit absent).

The main effect of TERA Convention was significant ($\chi^2 (1, N = 87) = 7.57, p < .01$). A gender by language interaction ($\chi^2 (1, N = 87) = 3.30, p = .069$) was retained in the model since its elimination adversely affected the accuracy of classification. The parameter estimates for the final model are presented in Table 17.
The odds ratio for TERA Conventions was 1.20 ($p < .01$; 95% CI = 1.05 – 1.38), indicating that an increase of one point on the TERA Conventions subtest increased the likelihood of including a subordinating clause by a factor of 1.20, controlling for all other variables in the model.

The gender by language effect favoured the ELL girls who were .15 times more likely to include a complex c-unit in their narrative than any other children, holding constant all other effects in the model. The composition of the response group was as follows: 31.6% ELL girls, 26.3% EL1 boys, 22.8% EL1 girls, and 19.3% ELL boys; 86% of the narratives of ELL girls featured at least one complex c-unit followed by 65% of the narratives of EL1 boys, 62% of the narratives of EL1 girls and 50% of the narratives of ELL boys.

Proportion of Grammatically Correct C-Units

The regression analysis for proportion of grammatically correct c-units was conducted using a linear probability distribution with an identity link function. The main effect of PPVT ($\chi^2 (1, N = 85) = 21.90, p = .000$) was significant. The main effect of language ($\chi^2 (1, N = 85) = 3.67, p = .055$) was retained since its removal adversely affected the model’s goodness of fit. The parameter estimates for the final model are presented in Table 18.
Table 18

GZLM Regression Results Predicting Proportion of Grammatically Correct C-Units

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>S.E.</th>
<th>Lower</th>
<th>Upper</th>
<th>Wald $\chi^2$</th>
<th>df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>1.22</td>
<td>.12</td>
<td>.97</td>
<td>1.46</td>
<td>95.58</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Language</td>
<td>-.11</td>
<td>.06</td>
<td>-.22</td>
<td>.00</td>
<td>3.67</td>
<td>1</td>
<td>.055</td>
</tr>
<tr>
<td>PPVT</td>
<td>.01</td>
<td>.01</td>
<td>.00</td>
<td>.01</td>
<td>21.90</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

$N = 85$

The results for language indicated that the EL1 children included a significantly higher proportion of grammatically correct c-units in their stories than their ELL counterparts. On average, 78% of the c-units included in the EL1 children’s narratives were grammatically correct (with a median of .83); the corresponding figure for the ELL children’s narratives was 54% (with a median of .50).

Indices of Cohesion

Subordinating Conjunctions

A direct logistic regression analysis was performed to assess prediction of membership in one of two categories of outcome (subordinating conjunction present/subordinating conjunction absent). The main effects of gender, grade, and PPVT raw score were significant. The parameter estimates for the final model are presented in Table 19.

Table 19

Logistic Regression Results Predicting Inclusion of a Subordinating Conjunction

<table>
<thead>
<tr>
<th>Final Model</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Significance</th>
<th>Exp(B)</th>
<th>95% C.I. for Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Grade</td>
<td>-1.72</td>
<td>.61</td>
<td>7.06</td>
<td>1</td>
<td>.008</td>
<td>.20</td>
<td>.06</td>
</tr>
<tr>
<td>Gender</td>
<td>-1.62</td>
<td>.61</td>
<td>7.05</td>
<td>1</td>
<td>.005</td>
<td>.18</td>
<td>.05</td>
</tr>
<tr>
<td>PPVT</td>
<td>.04</td>
<td>.01</td>
<td>8.58</td>
<td>1</td>
<td>.003</td>
<td>1.04</td>
<td>1.01</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.17</td>
<td>1.22</td>
<td>3.17</td>
<td>1</td>
<td>.075</td>
<td>.11</td>
<td></td>
</tr>
</tbody>
</table>

$N = 86$
The odds ratio for PPVT was 1.04 ($p < .01$; 95% CI = 1.01 – 1.08), indicating that an increase of one point on the PPVT increased the likelihood of including a subordinating clause by a factor of 1.06, controlling for all other variables in the model.

With respect to grade, proportionately fewer JK than SK children included a subordinating conjunction in their narrative, adjusting for all other variables in the equation. The composition of the response group based on grade was 74% SK and 26% JK children; 59.6% of SK children were found to include a subordinating conjunction in their story compared with 25.6% of JK children. A significant gender effect was also found. Boys were significantly less likely to include a subordinating conjunction in their narrative than girls, controlling for all other variables in the model. The composition of the response group based on gender was 59% girls and 41% boys. 53.6% of girls were found to include a subordinating conjunction in their narrative compared with 35.5% of boys.

**Causal Conjunctions**

A direct logistic regression analysis was performed to assess prediction of membership in one of two categories of outcome (causal conjunction present/causal conjunction absent). The main effect of grade ($\chi^2 (1, N = 87) = 4.70, p < .05$) was significant. The main effect of gender ($\chi^2 (1, N = 87) = 3.71, p = .054$) was retained in the model since its removal adversely affected the accuracy of classification. The parameter estimates for the final model are presented in Table 20.
Table 20

Logistic Regression Results Predicting Inclusion of a Causal Conjunction

<table>
<thead>
<tr>
<th>Final Model</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Significance</th>
<th>Exp(B)</th>
<th>95% C.I. for Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>-1.45</td>
<td>.65</td>
<td>4.70</td>
<td>1</td>
<td>.026</td>
<td>.23</td>
<td>.06</td>
</tr>
<tr>
<td>Gender</td>
<td>-1.15</td>
<td>.60</td>
<td>3.71</td>
<td>1</td>
<td>.054</td>
<td>.32</td>
<td>.09</td>
</tr>
<tr>
<td>Constant</td>
<td>-.37</td>
<td>.44</td>
<td>.68</td>
<td>1</td>
<td>.409</td>
<td>.69</td>
<td></td>
</tr>
</tbody>
</table>

N = 87

With respect to grade, proportionately fewer JK children than SK children included a causal conjunction in their narrative, adjusting for all other variables in the equation. The composition of the response group based on grade was 76% SK and 24% JK children; 27.7% of the SK children were found to include a causal conjunction in their story compared with 10.3% of the JK children. With respect to gender, boys were significantly less likely to include a causal conjunction in their narrative than girls, controlling for all other variables in the model. The composition of the response group on the basis of gender was 65% girls and 35% boys. 26.2% of the girls were found to include a causal conjunction in their narrative compared with 13.3% of the boys.

Adversative Conjunctions

A direct logistic regression analysis was performed to assess prediction of membership in one of two categories of outcome (adversative conjunction present/adversative conjunction absent. The main effects of language ($\chi^2 (1, N = 87) = 4.65, p < .05$) and PPVT raw score ($\chi^2 (1, N = 87) = 6.90, p < .01$) were significant. The main effect of gender ($\chi^2 (1, N = 87) = 2.64, p = .104$) was retained in the model since its removal adversely affected the accuracy of classification. The parameter estimates for the final model are presented in Table 21.
Table 21

**Logistic Regression Results Predicting Inclusion of an Adversative Conjunction**

<table>
<thead>
<tr>
<th>Final Model</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Significance</th>
<th>Exp(B)</th>
<th>95% C.I. for Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>1.97</td>
<td>.91</td>
<td>4.65</td>
<td>1</td>
<td>.031</td>
<td>7.16</td>
<td>1.20 - 42.82</td>
</tr>
<tr>
<td>Gender</td>
<td>-1.16</td>
<td>.71</td>
<td>2.64</td>
<td>1</td>
<td>.104</td>
<td>.31</td>
<td>.08 - 1.28</td>
</tr>
<tr>
<td>PPVT</td>
<td>.07</td>
<td>.03</td>
<td>6.90</td>
<td>1</td>
<td>.009</td>
<td>1.07</td>
<td>1.02 - 1.13</td>
</tr>
<tr>
<td>Constant</td>
<td>-8.31</td>
<td>2.72</td>
<td>9.33</td>
<td>1</td>
<td>.002</td>
<td>.00</td>
<td></td>
</tr>
</tbody>
</table>

\(N = 87\)

The odds ratio for PPVT was 1.07 \((p < .01; 95\% CI = 1.02 - 1.13)\), indicating that an increase of one point on the PPVT increased the likelihood of including an adversative conjunction by a factor of 1.07, controlling for all other variables in the model.

With respect to language, the ELL children were significantly more likely to include an adversative conjunction in their narrative than their EL1 counterparts, holding constant all other effects in the model. The composition of the response group based on language was 58% ELL and 42% EL1; 16.3% of ELL children included an adversative conjunction in their story compared with 11.4% of EL1 children. With respect to gender, proportionately fewer boys than girls included an adversative conjunction in their narrative, controlling for all other variables in the model. The composition of the response group based on gender was 67% girls and 33% boys; 19% of the girls included an adversative conjunction in their narrative compared with 8.9% of the boys.

Macrostructure Variables

Descriptive statistics for the number of essential story grammar elements included in the children’s narratives and for story structure level are presented in Table 22. Table 23 shows the correlations among all continuous, dependent measures of macrostructure and the independent variables. Regressions results for each variable follow the correlational tables.
Table 22

*Descriptive Statistics for Story Grammar Essential Elements and Story Structure Level*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Skewness</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG_ESEL</td>
<td>1.48</td>
<td>1.27</td>
<td>1.00</td>
<td>0.00</td>
<td>4.00</td>
<td>.68</td>
<td>.26</td>
</tr>
<tr>
<td>SSL</td>
<td>2.99</td>
<td>1.50</td>
<td>3.00</td>
<td>0.00</td>
<td>6.00</td>
<td>.69</td>
<td></td>
</tr>
</tbody>
</table>

Note: N = 87. SG_ESEL = Story Grammar Essential Elements; SSL = Story Structure Level

Table 23

*Bivariate Correlations Among Predictor Variables, Essential Elements of Story Grammar and Story Structure Category*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.100</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>-.19</td>
<td>.100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>-.01</td>
<td>-.06</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPVT</td>
<td>-.03</td>
<td>.31**</td>
<td>.49**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TERA_A</td>
<td>-.03</td>
<td>.51**</td>
<td>.05</td>
<td>.52**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TERA_C</td>
<td>.02</td>
<td>.55**</td>
<td>.00</td>
<td>.57**</td>
<td>.74</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TERA_M</td>
<td>-.01</td>
<td>.28**</td>
<td>.17</td>
<td>.55**</td>
<td>.56</td>
<td>.65</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TERA_T</td>
<td>-.01</td>
<td>.51**</td>
<td>.08</td>
<td>.61**</td>
<td>.91**</td>
<td>.89**</td>
<td>.81**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG_ESEL</td>
<td>.09</td>
<td>.32**</td>
<td>-.14</td>
<td>.17</td>
<td>.25*</td>
<td>.33**</td>
<td>.04</td>
<td>.28*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>SSL</td>
<td>.09</td>
<td>.27*</td>
<td>-.17</td>
<td>.08</td>
<td>.26*</td>
<td>.27*</td>
<td>.08</td>
<td>.23*</td>
<td>.31**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: N=87. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; SG_ESEL = Essential Story Grammar Elements; SSL = Story Structure Level

**p < .01, * p < .05.

Story Grammar Elements

A direct logistic regression analysis was performed for each element of story grammar to assess prediction of membership in one of two categories of outcome (element present/element absent) on the basis of grade, language, gender, vocabulary (PPVT), and early reading ability (TERA Total, Alphabet, Conventions or Meaning). Detailed results tables for all elements of story grammar (diagnostics tables, classification tables, descriptive statistics tables, crosstabulation tables) appear in Appendix D.
Setting

The main effect of TERA Total was significant ($\chi^2 (1, N = 87) = 12.87, p < .001$). The odds ratio for the TERA Total was 1.11 ($p < .01; 95\% CI = 1.08 – 1.43$), indicating that an increase of one point in the TERA Total score increased the likelihood of including a setting by a factor of 1.11.

Initiating Event

The main effect of TERA Conventions was significant ($\chi^2 (1, N = 87) = 8.91, p < .01$). The odds ratio for the TERA Conventions was 1.24 ($p < .01; 95\% CI = 1.08 – 1.43$), indicating that an increase of one point on the TERA Conventions subtest increased the likelihood of including an initiating event by a factor of 1.24.

Internal Response

The main effects of gender ($\chi^2 (1, N = 87) = 4.72, p < .05$) and TERA Alphabet ($\chi^2 (1, N = 87) = 5.66, p < .05$) were significant. The parameter estimates for the final model are presented in Table 24.

Table 24

<table>
<thead>
<tr>
<th>Final Model</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Significance</th>
<th>Exp(B)</th>
<th>95% C.I. for Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-1.08</td>
<td>.50</td>
<td>4.72</td>
<td>1</td>
<td>.030</td>
<td>.34</td>
<td>.13  .90</td>
</tr>
<tr>
<td>TERA Alphabet</td>
<td>.10</td>
<td>.04</td>
<td>5.66</td>
<td>1</td>
<td>.017</td>
<td>1.11</td>
<td>1.02  1.21</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.23</td>
<td>.90</td>
<td>6.10</td>
<td>1</td>
<td>.014</td>
<td>.11</td>
<td></td>
</tr>
</tbody>
</table>

The odds ratio for the TERA Alphabet was 1.11 ($p < .05; 95\% CI = 1.02 – 1.21$), indicating that an increase of one point on the TERA Alphabet subtest increased the likelihood of
including an internal response by a factor of 1.11. With respect to gender, proportionately fewer boys than girls included an internal response in their narrative. The composition of the response group based on gender was 64% girls and 36% boys; 22.2% of the boys were found to include an internal response in their narrative compared with 42.8% of the girls.

**Attempt**

The main effect of grade was significant ($\chi^2 (1, N = 87) = 5.07, p < .05$). Significantly fewer JK than SK children included an attempt in their narrative. The composition of the response group based on grade was 79% SK and 21% JK children; 10.2% of the JK children were found to include an attempt in their narrative compared with 31.2% of the SK children.

**Consequence**

The main effect of grade was significant ($\chi^2 (1, N = 87) = 4.33, p < .05$). Significantly fewer JK than SK children included a consequence in their narrative. The composition of the response group based on grade was 78% SK and 22% JK children; 10.2% of the JK children were found to include a consequence in their narrative compared with 31.2% of the SK children.

**Reaction**

The main effect of TERA Conventions was significant ($\chi^2 (1, N = 87) = 4.12, p < .05$). The odds ratio for the TERA Conventions was 1.49 ($p < .05$; 95% CI = 1.01 – 1.31), indicating that an increase of one point on the TERA Conventions subtest increased the likelihood of including an initiating event by a factor of 1.49.
Essential Elements of Story Grammar

Hughes et al. (1997) identify four elements of story grammar that are essential in determining the episodic quality of a narrative: initiating event, attempt, consequence, and reaction. To test for an overall pattern of prediction with respect to story grammar, the variables representing these four elements were collapsed to create a single continuous variable. A score of 1 was awarded for the inclusion of each of the four essential elements, to a maximum of 4. A direct regression analysis was run using GZLM. The effects were modelled using an Inverse Gaussian probability distribution with an identity link.

The main effect of TERA Conventions was significant ($\chi^2 (1, N = 86) = 13.09, p < .01$). Grade was retained since its removal had an adverse affect on the goodness of the model fit ($\chi^2 (1, N = 86) = 2.97, p = .085$). The parameter estimates for the final model are given in Table 25.

Table 25

GZLM Regression Results Predicting Score on Story Grammar Essential Elements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>S.E.</th>
<th>95% Confidence Interval</th>
<th>Hypothesis Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>1.62</td>
<td>.45</td>
<td>.74 - 2.49</td>
<td>$\chi^2$ 13.09</td>
</tr>
<tr>
<td>Grade</td>
<td>-.51</td>
<td>.29</td>
<td>-1.09 - 0.07</td>
<td>$\chi^2$ 2.97</td>
</tr>
<tr>
<td>TERA Conventions</td>
<td>.10</td>
<td>.04</td>
<td>.03 - .18</td>
<td>$\chi^2$ 6.99</td>
</tr>
</tbody>
</table>

$N = 86$

The SK children were found to include a significantly greater number of essential story elements in their narratives than the JK children. The SK children included an average of 1.77 essential elements in their stories, compared with .87 for the younger JK children.
Story Structure Categories

While every effort was made to ensure objectivity in determining story structure levels, the very nature of assigning finely graded scores is prone to subjective interpretation. As a result, the story structure level variable was dichotomized to create the variable story structure category, reducing from 6 to 2 the number of gradations. The 3 levels representing sequences (descriptive, action and reactive sequences) were collapsed and coded as 0. The 3 levels representing episodes (abbreviated, incomplete and complete episodes) were collapsed and coded as 1. A direct logistic regression analysis was performed to assess prediction of membership in each of the two categories of outcome (sequences/episodes).

The main effect of TERA Conventions was significant ($\chi^2 (1, N = 85) = 6.07, p < .01$). Language ($p = .079$) was retained in the model since its removal adversely affected the accuracy of classification. The parameter estimates for the final model are presented in Table 26.

Table 26

Logistic Regression Results Predicting Membership in Story Structure Category

<table>
<thead>
<tr>
<th>Parameter</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Significance</th>
<th>Exp(B)</th>
<th>95% C.I. for Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>.88</td>
<td>.50</td>
<td>3.08</td>
<td>1</td>
<td>.079</td>
<td>2.41</td>
<td>[.90, 6.42]</td>
</tr>
<tr>
<td>TERA_C</td>
<td>.17</td>
<td>.07</td>
<td>6.07</td>
<td>1</td>
<td>.014</td>
<td>1.18</td>
<td>[1.03, 1.35]</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.87</td>
<td>.82</td>
<td>12.48</td>
<td>1</td>
<td>.000</td>
<td>.05</td>
<td></td>
</tr>
</tbody>
</table>

$N = 85$

The odds ratio for TERA Conventions was 1.18 ($p < .05$; 95% CI = 1.03 – 1.35), indicating that an increase of one point on the TERA Conventions subtest increased the likelihood of generating an episode by a factor 1.18, controlling for all other variables in the model.
With respect to language, the ELL children were more likely to produce a narrative scored as an episode than their EL1 counterparts, holding constant all other effects in the model. The ELL children narrated 43% of the stories rated as sequences and 63% of those rated as episodes. The narratives of 40.5% of ELL children were scored as episodes compared with 23.3% of the narratives of EL1 children.

Evaluative Language

Table 27 shows the correlations among all dependent measures of microstructure and the independent variables. Regressions results for each variable follow the correlational table.

Table 27

| Bivariate and Point Biserial Correlations Among Predictor Variables and Indices Evaluative Language |
|-----------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                               | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     |
| 1. Gender                  | 1.00   |        |        |        |        |        |        |        |        |        |        |        |
| 2. Grade                   | -0.19  | 1.00   |        |        |        |        |        |        |        |        |        |        |
| 3. Language                | -0.01  | -0.06  | 1.00   |        |        |        |        |        |        |        |        |        |
| 4. PPVT                    | -0.03  | 0.31   | 0.49   | 1.00   |        |        |        |        |        |        |        |        |
| 5. TERA_A                  | -0.03  | 0.51   | 0.05   | 0.52   | 1.00   |        |        |        |        |        |        |        |
| 6. TERA_C                  | 0.02   | 0.55   | 0.00   | 0.57   | 0.74   | 1.00   |        |        |        |        |        |        |
| 7. TERA_M                  | -0.01  | 0.28   | 0.17   | 0.55   | 0.56   | 0.65   | 1.00   |        |        |        |        |        |
| 8. TERA_T                  | -0.01  | 0.51   | 0.08   | 0.61   | 0.91   | 0.89   | 0.81   | 1.00   |        |        |        |        |
| 9. EVAL_IN                 | -0.07  | 0.22   | 0.12   | 0.28   | 0.39   | 0.29   | 0.27   | 0.37   | 1.00   |        |        |        |
| 10. EVAL_COG               | 0.01   | 0.19   | 0.09   | 0.40   | 0.52   | 0.50   | 0.40   | 0.55   | 0.59   | 1.00   |        |        |
| 11. EVAL_DI                 | 0.28   | -0.02  | -0.15  | -0.12  | -0.07  | -0.15  | -0.12  | -0.08  | -0.14  | 0.06   | 1.00   |        |
| 12. PERSPECT               | 0.11   | 0.19   | -0.12  | 0.32   | 0.51   | 0.41   | 0.35   | 0.48   | 0.48   | 0.71   | 0.02   | 1.00   |

Note: N=87. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; EVAL_IN = Expression of Intent Present/Absent; EVAL_COG = Metacognitive Verb Present/Absent; EVAL_DI = Dialogue Present/Absent; PERSPECT = Character Perspective Total Score

**p < .01, *p < .05

A direct logistic regression analysis was performed for each element of evaluative language to assess prediction of membership in one of two categories of outcome (element present/element absent) on the basis of grade, language, gender, vocabulary (PPVT), and early reading ability (TERA Total, Alphabet, Conventions or Meaning). Detailed results tables for all
elements of evaluative language (diagnostics tables, classification tables, descriptive statistics tables, crosstabulation tables) appear in Appendix D.

**Expressions of Intent**

The main effect of TERA Alphabet was significant ($\chi^2 (1, N = 87) = 11.09, p = .001$). The odds ratio for the TERA Alphabet subtest was 1.14 ($p < .001; 95\% \text{ CI} = 1.06 – 1.24$), indicating that an increase of one point on the TERA_A subtest increased the likelihood of including a subordinating clause by a factor 1.14.

**Metacognitive Verb Use**

The main effect of TERA Total was significant ($\chi^2 (1, N = 87) = 17.59, p < .001$). The odds ratio for the TERA Total score was 1.16 ($p < .01; 95\% \text{ CI} = 1.08 – 1.24$), indicating that an increase of one point in the TERA Total score increased the likelihood of including a metacognitive verb by a factor 1.16.

**Use of Dialogue**

The main effect of gender was significant ($\chi^2 (1, N = 87) = 6.03, p < .05$). Proportionately fewer boys than girls included dialogue in their narrative. The composition of the response group based on gender was 76\% girls and 24\% boys; 4 out of 45 boys (9\%) were found to include dialogue in their narrative compared with 13 out of 42 girls (31\%).

**Indices of Character Perspective**

In order to assess the children’s ability to embrace character perspective, the narratives were re-scored and a broader range of mental state terms were tallied. Terms that were judged to implicitly suggest character intent and perspective – such as “to steal”, “to hide”, “to protect”, “to make [sic] a prank” – were included in the tally. A composite variable was computed by
collapsing 4 indices of evaluative language (number of metacognitive verbs, number of emotion terms, number of terms designating physical state, and frequency of direct dialogue) as well as the mental state term total score.

A direct regression analysis was conducted using the generalized linear model option in SPSS. The effects were modelled using a linear probability distribution with an identity link function. The main effect of TERA Alphabet was significant \( \chi^2 (1, N = 87) = 17.91, p = .000 \).

Summary of Results

Narrative Microstructure

Indices of Productivity

Language, Grade, and Gender Effects

An absence of main effects for language status was found for all 4 indices of productivity (total number of words, number of different words, number of c-units, number of target nouns). The ELL children told stories that were comparable to their EL1 counterparts in terms of total word count and the number of c-units they comprised. However, the ELL stories demonstrated considerably greater variability in length than the EL1 stories. No statistical differences were found for the number of target nouns included in their stories.

Age-related differences in favour of the SK children were found for both total number of words, number of different words, and number of c-units, indicating a clear developmental trend in narrative productivity between junior and senior kindergarten. The SK narratives demonstrated considerably more variability than the JK narratives in terms of total number of words and number of different words. With respect to gender, the stories generated by girls were found to be significantly longer than those generated by boys, including a significantly greater
number of words and c-units. Furthermore, a gender by grade interaction in favour of the SK girls was found for total number of words.

*Associations with Receptive Vocabulary and Emergent Reading Ability*

PPVT scores were retained in the regression models for both total number of words and number of target nouns. The TERA Total Score also predicted the number of target nouns children included in their narratives. The TERA Total Score was also retained in the regression model for number of c-units, while the TERA Conventions score was found to significantly predict number of different words. Therefore, in the context of the present study, narrative productivity was positively associated with both receptive vocabulary and early reading ability.

*Indices of Complexity*

*Language, Grade, and Gender Effects*

No main effects for language were found on either measure of complexity (mean length of c-units in words, presence/absence of at least one complex c-unit). However, a gender by language interaction revealed that a proportionately greater number of ELL girls included at least one complex c-unit in their narrative than did all other groups. However, it is important to keep in mind that the narratives included relatively few complex c-units overall. In fact, one third of the children generated a narrative with no complex c-unit.

Grade was not retained in either of the regression models related to indices of complexity. Main effects for gender favouring the girls and a significant gender by grade interaction favouring the SK girls were found for mean length of c-units.
Associations with Receptive Vocabulary and Early Reading Ability

No main effect of PPVT was found for either measure of complexity. On the other hand, both mean length of c-unit and the presence of a complex c-unit were significantly predicted by the TERA Conventions subtest. Within the context of the present study, therefore, syntactic complexity in narrative discourse was found to be independent of receptive vocabulary but significantly and positively associated with an indicator of early reading ability.

Index of Grammaticality

Language, Grade, and Gender Effects

Language status was found to predict the proportion of grammatically correct c-units included in the children’s stories. The narratives of the EL1 children included proportionately more c-units judged to conform to English syntax. Neither grade nor gender was retained in the regression model.

Associations with Receptive Vocabulary and Emergent Reading Ability

The proportion of grammatically correct c-units included in the children’s narratives was significantly related to performance on the PPVT. No main effect of TERA was found. Within the context of the present study, therefore, grammaticality was found to be independent of early reading ability, but significantly and positively associated with receptive vocabulary.

Indices of Cohesion

Language, Grade, and Gender Effects

No adequate model was achieved to predict the presence of three indices of cohesion: inclusion of at least one exemplar from the category of coordinating conjunction, as well as the subtypes of additive and temporal conjunctions. These results are not surprising where
coordinating and additive conjunctions are concerned, given their ubiquity in the children’s narratives. Over 87% of the narratives included at least one coordinating conjunction. Approximately 82% of the children’s narratives included at least one additive conjunction (and being the most commonly occurring additive conjunction). Analyses based on frequency were also inconclusive. On the other hand, only 42.5% of the children included a temporal conjunction in their story (then being the most commonly occurring temporal conjunction). These children were equally distributed within and across language, grade, and gender. Again, analyses based on frequency were inconclusive. Cain (2003) suggests that expressing connective use as a proportion of the number of propositions in the narrative may provide a more sensitive index of linguistic cohesion. This method of scoring could be used for future research.

No main effect for language was found predicting inclusion of at least one subordinating conjunction. However, the results suggested a trend in favour of the EL1 children. No main language effect was found predicting inclusion of at least one causal conjunction.

Language did, however, predict the presence of an adversative clause. The effect favoured the ELL children. Once again, it is important to keep in mind the relative infrequency of adversative conjunctions in the children’s stories. A total of 12 narratives (or 14% of all narratives) included at least one adversative conjunction, 7 of which were generated by ELL children.

Significant main effects were found for grade for presence of at least one subordinating and one causal conjunction. In both cases, the grade effect favoured the SK children. Gender was found to be a statistically significant predictor of inclusion of at least one subordinating clause. It was also retained in the regression equation predicting the presence of a causal and adversative conjunction. In all cases, the effect favoured the girls.
**Associations with Receptive Vocabulary and Emergent Reading Ability**

PPVT scores were significantly associated with the presence of a subordinating and causal conjunction. No main effect for TERA was found. Within the context of the present study, therefore, the use of cohesive language was found to be independent of early reading ability but significantly and positively associated with receptive vocabulary.

**Narrative Macrostructure**

**Story Grammar Elements**

**Language, Grade, and Gender Effects**

No language effects were found predicting the inclusion of story grammar elements. The ELL children were as likely to include each story grammar element as their EL1 peers. A main effect for grade was found for 3 of the 6 elements. Grade was significantly associated with inclusion of an attempt and a consequence and was retained in the model predicting the mean number of essential story grammar elements present in the children’s stories. A significantly greater proportion of SK narratives included an initiating event, and grade trends were found with respect to inclusion of a setting, an internal response, and reactions. Gender was significantly related to the presence of an internal response.

However, the models predicting the presence of an attempt, a consequence and a reaction were very weak. This is due, in part, to the relative infrequency of these 3 features in the narratives.

**Associations with Receptive Vocabulary and Emergent Reading Ability**

PPVT scores failed to predict the presence of any element of story grammar or the mean number of essential story grammar elements present in the children’s stories. The TERA total
score, conventions subtest score, and alphabet subtest score were significantly related to 5 of the 7 story grammar measures, including the mean number of essential story grammar elements. Within the context of the present study, therefore, the inclusion of story grammar elements was found to be independent of receptive vocabulary but significantly and positively associated with early reading ability.

**Story Structure**

**Language, Grade, and Gender Effects**

Language was retained in the regression models for story structure category. The effect favoured the ELL children. No grade effects were found on either measure of story structure. However, a significantly greater proportion of SK narratives were found to fall in the category of episodes. No gender effects were found.

**Associations with Receptive Vocabulary and Emergent Reading Ability**

Performance on the PPVT failed to predict story structure. However, the TERA conventions subtest was significantly related to story structure. Within the context of the present study, therefore, story structure was found to be independent of receptive vocabulary but significantly and positively associated with early reading ability.

**Evaluative Language**

**Language, Grade, and Gender Effects**

No adequate model was achieved to predict the presence of modifiers. They, too, were a ubiquitous feature of the children’s stories. At least one modifier was included in 93.1% of the narratives. Analyses based on frequency were equally inconclusive. In future, it may be
worthwhile to score adjectives and adverbs separately to determine whether the presence of one or the other effectively discriminates among groups.

No language effects were found on any measure of evaluative language. The ELL children were as likely to include at least one expression of intent and one metacognitive verb as their EL1 peers. Furthermore, their mean score on the overall measure of character perspective was comparable with that of the EL1 children. No main effect was found for grade. Gender was found to significantly predict the presence of dialogue in a child’s narrative, but the model was particularly weak. The effect favoured the girls.

*Associations with Receptive Vocabulary and Emergent Reading Ability*

PPVT scores failed to predict any measure of evaluative language. On the other hand, the TERA total score and TERA alphabet subtest were significantly related to the presence of at least one expression of intent and at least one metacognitive verb, as well as the mean character perspective score. Within the context of the present study, therefore, story structure was found to be independent of receptive vocabulary but significantly and positively associated with early reading ability.

A summary of the results obtained for all regression and supplementary analyses is presented in Table 28.
Table 28

**Summary of Results for Regression and Supplementary Analyses**

<table>
<thead>
<tr>
<th>Narrative Dimension</th>
<th>Variable</th>
<th>Parameters Retained in Final Model</th>
<th>Group Discriminated</th>
<th>Supplementary Analyses</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>*<em>p&lt;.01; <em>p&lt;.05</em></em></td>
<td></td>
<td></td>
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<tr>
<td>Microstructure:</td>
<td>Total Number of Words</td>
<td>Grade* Gender** Gender by grade** PPVT</td>
<td>SK Girls SK Girls</td>
<td>Language ELL=EL1</td>
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<td>Productivity</td>
<td>Number of Different Words</td>
<td>Grade* Gender by language TERA C**</td>
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<tr>
<td></td>
<td>Number of C-units</td>
<td>Grade* Gender** TERA T</td>
<td>SK Girls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of Target Nouns</td>
<td>PPVT* TERA T</td>
<td>SK ELL Girls Grade JK=SK</td>
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<tr>
<td></td>
<td>Mean Length of C-units in Words</td>
<td>Gender* Gender by grade** TERA C**</td>
<td>Girls SK Girls</td>
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</tr>
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<td>Gender by language TERA C**</td>
<td>ELL Girls Grade SK&gt;JK</td>
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<td></td>
<td>Proportion of Grammatically Correct C-units</td>
<td>Language PPVT**</td>
<td>EL1 Grade SK&gt;JK</td>
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<tr>
<td>Grammaticality</td>
<td>Subordinating Conjunction Present</td>
<td>Grade** Gender** PPVT**</td>
<td>SK Girls</td>
<td>Language Trend in favour of EL1</td>
</tr>
<tr>
<td>Cohesion</td>
<td>Causal Conjunction Present</td>
<td>Grade* Gender</td>
<td>SK Girls</td>
<td>Grade SK&gt;JK</td>
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<td></td>
<td>Adversative Conjunction Present</td>
<td>Language* Gender PPVT**</td>
<td>ELL Girls</td>
<td>Grade SK&gt;JK</td>
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<td>Macrostructure:</td>
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<td>Elements of Story Grammar</td>
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<td>Setting Present</td>
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<td>Gender*</td>
<td></td>
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<td>Attempt Present</td>
<td>Grade*</td>
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<td>Grade SK&gt;JK</td>
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</tr>
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<td>Story Structure Category</td>
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<td>Metacognitive Verb Present</td>
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<tr>
<td>Dialogue Present</td>
<td>Gender*</td>
<td></td>
<td>Grade SK&gt;JK</td>
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<td>Character Perspective</td>
<td>TERA_A**</td>
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<td>Grade SK&gt;JK</td>
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</tbody>
</table>
Chapter Five: Discussion

Research Question #1

How do ELL and EL1 fictional narratives compare overall across the kindergarten years with respect to macro- and microstructure and the use of evaluative language? The findings of the present study suggest that they are more alike – structurally and linguistically – than they are different. Moreover, the results indicate that the developmental markers that typify L1 narratives are mirrored in L2 narratives and that, for the most part, this holds true regardless of gender (although gender would appear to play a greater role in second-language than in first-language discourse development in the early years). The results also indicate that the competencies that underlie certain aspects of storytelling may differ somewhat between the two groups.

In terms of productivity, the ELL stories were generally comparable to the EL1 stories. Overall, they were of approximately equivalent length in terms of the number of words and utterances they comprised. This was found to be the case in both JK and SK. It would appear, therefore, that first- and second-language learners as a whole are indistinguishable on the basis of these indices of productivity, which are nonetheless successful in capturing parallel developmental trends in the two language groups. This latter finding conflicts with Muñoz (2003), who found productivity measures to be less robust indicators of development in bilingual children than would be expected based on the research focusing on monolingual children. However, her sample was restricted to low-SES Hispanic children, potentially limiting the study’s applicability beyond its target population.

Differences due to gender were evident both within and across language groups on these same productivity measures; the ELL girls, like their EL1 counterparts, outperformed the boys in
their respective language groups. In the case of total number of words, the gender effect extended to grade: the SK girls produced narratives that were significantly longer than those of all other groups. The differences in productivity due to gender would appear to begin in JK, since both the JK ELL and JK EL1 girls generated narratives with higher word counts (though not significantly so) than the narratives of either the JK or SK boys. Thus, trends with respect to gender are equally evident in ELL and EL1 narrative competence where productivity is concerned. Fiorentino and Howe (2004) found differences in productivity attributable to gender in a monolingual preschool sample. However, no previous studies were found demonstrating parallel effects in a sample of second language learners.

No ELL-EL1 differences were found in the number of target nouns (pig, fox, egg, etc.) the children included in their narratives, putting to rest concerns that potential differences in narrative performance in this study may be due to gaps in knowledge of story-specific vocabulary (Guttiérrez-Clellen, 2002). These findings stand in contrast to those reported by Pearson (1996; 2002), who found story-specific vocabulary knowledge among bilingual children to be significantly below that of their monolingual peers in both grades 2 and 5. Vocabulary was, nonetheless, associated with children’s performance on this measure (as were emergent literacy outcomes). The relationship between vocabulary and the presence of target nouns in the narratives was fairly constant; for the most part, this relationship held across language groups although the absolute scores of the ELL children on the PPVT were significantly below those of the EL1 children.

The pattern of parallel ELL and EL1 findings did not extend to all measures of productivity. In the case of lexical diversity, considered by some researchers to be a particularly sensitive measure of language proficiency (e.g., Justice, Bowles, Pence & Gosse, 2010;
Westerveld & Gillon, 2010), the ELL girls generated narratives that were comparable to the EL1 narratives, but the ELL boys demonstrated use of a somewhat more restricted range of vocabulary than all other children. While an encouraging result for the ELL girls, the ELL boys’ lag in performance points to a potential area of concern for educators of second-language learners and speaks to the need for systematic vocabulary instruction, particularly in linguistically diverse classrooms. A discussion of gender differences across language groups will follow shortly.

With respect to complexity, the ELL and EL1 narratives were largely comparable both within and across grades, corroborating Pearson’s (2002) findings and providing support for her argument that narrative complexity represents a relatively general capability that spans languages. With respect to mean length of utterances, competence was distinguished on the basis of gender and grade in both the ELL and EL1 groups. However, the ELL girls demonstrated a slightly greater – though not statistically significant – likelihood of including at least one complex communication unit in their narratives. It is important to note the relative infrequency of complex c-units overall (18% of the total c-unit output), a finding that reflects developmental constraints that have been documented elsewhere (e.g., Curenton & Justice, 2004) and that may tend to inflate group differences in a small sample. Nonetheless, approximately one third of the ELL girls included a complex utterance in their narratives compared with one quarter of the EL1 children and one fifth of the ELL boys.

The ELL girls’ performance on this particular measure of complexity is noteworthy in light of their relatively poor showing on the PPVT. It would appear, therefore, that the ability of these children to generate narratives that demonstrate intra-sentential complexity is independent of word-level competency, providing support for the contention that greater dissociations
between component language skills exist in bilingual children than in monolingual children (Pearson, Oller, Umbel & Fernández, 1996). Further support for this notion is garnered when one considers that among the EL1 children, the inclusion of at least one complex utterance was moderately and positively correlated with vocabulary skills; on the other hand, the two scores showed no association whatsoever for the ELL children. The theme of dissociation of skills is one that will be repeated throughout this discussion and will be treated in greater depth in the discussion relating vocabulary and narrative competence.

The discrepancy between the ELL boys and girls with respect to inclusion of at least one complex c-unit is striking, especially in comparison to the roughly equivalent performance of the EL1 boys and girls on that measure. This finding, in conjunction with the finding related to lexical diversity, suggests that ELL boys are at a disadvantage relative to their female counterparts in some aspects of narrative production. While the gender by language effect was retained in the final model for these two variables only, it is important to note that the ELL boys lagged behind all other groups on virtually all performance indicators (the one notable exception being membership in the category of episodes). On the other hand, the ELL girls consistently performed on par with the EL1 children (the one notable exception relating to grammaticality). No parallel discrepancy in performance was found on the PPVT or TERA, where the ELL boys’ scores were equivalent to those of the ELL girls, nor was a parallel discrepancy found in the performance of the EL1 boys and girls. It would appear, therefore, that gender plays a role of somewhat greater importance in second-language discourse development in the early years than it does in first-language discourse development.

It is essential, to note, however, that the ELL boys showed improvement in all outcomes across grades. While absolute values were consistently below those of the other groups, the ELL
boys demonstrated increases in scores between JK and SK that parallel those of the other groups. While cohort effects cannot be ruled out in the case of a cross-sectional study, this finding is encouraging. Longitudinal follow-up of second language learners to determine if and when boys catch up to their peers would be warranted.

With respect to the use of cohesive ties, the ELL narratives were generally comparable to the EL1 narratives. Language status was not significantly related to the likelihood of including at least one subordinating conjunction. However, the PPVT was retained in the final model, masking a language trend in favour of the EL1 children. Subordinating conjunctions are semantically complex lexical items that have been shown to be difficult to acquire in a monolingual sample (Geva, 2007). The results of this study suggest that they may represent a particular challenge for ELL children.

Language status did not play a role in predicting the inclusion of additive or temporal conjunctions, both of which were ubiquitous features of the children’s narratives, nor did it play a role in predicting the inclusion of causal conjunctions. These results suggest parallel ELL and EL1 developmental continua with respect to the acquisition of these three subtypes of conjunctions. Language status did, however, predict the presence of at least one adversative conjunction (a subtype of coordinating conjunction), all of which were the word, but, a high frequency lexical item in the children’s spoken vocabulary (Geva, 2007). Again, it is important to keep in mind that adversative conjunctions were relatively infrequent features of the children’s narratives. The significant language group effect for the presence of at least one adversative conjunction favoured the ELL children; 16% of the ELL narratives included at least one adversative conjunction, compared with 11% of the EL1 narratives.
Further evidence of a relative dissociation between L2 word- and discourse-level skills was found in the results related to conjunction use on the one hand, and receptive vocabulary on the other. PPVT scores were held constant in the models predicting inclusion of a subordinating and adversative conjunction. However, while the inclusion of these cohesive ties in the children’s narratives was moderately associated with PPVT scores among the EL1 children, it showed only a weak association with PPVT scores among the ELL children. These results, which echo those relating to complexity, point to potential differences in the role vocabulary knowledge plays with respect to the acquisition of cohesive language in ELL and EL1 children and suggest greater independence between the components of language among second language learners.

With respect to story macrostructure, no differences were found in relation to the likelihood of ELL and EL1 children including a particular story grammar element, nor in the median number of essential story grammar elements. These results support Berman’s (2001) claim that children rely on similar strategies in conceptualizing, planning, and organizing their narrations, regardless of linguistic background. The ELL children were, however, slightly more likely than their EL1 counterparts to narrate a story that fell into the category of episodes (abbreviated, incomplete, or complete episode) rather than sequences (descriptive, action, reactive); differences in performance across language were due in large part to the ELL SK children who generated almost one half of the narratives rated as episodes. At the same time, the magnitude of the gap on PPVT scores between the ELL and EL1 children increased dramatically between JK and SK, particularly where the girls were concerned. Furthermore, PPVT scores for the EL1 children were found to correlate moderately and positively with both the essential story grammar elements total score and story structure category, while demonstrating only weak or
very weak associations among the ELL children. Taken together these findings suggest, once again, that the developmental trajectories of word-level and global discourse-level skills in EL1 children appear to be more or less parallel, while those of the ELL children (in English) seem to be unrelated to one another.

The data revealed some evidence that for both the ELL and EL1 narratives, cohesive language was critical to the establishment of structural coherence, as one would expect based on the extant L1 literature (e.g., Cain, 2003; Shapiro & Hudson, 1991). However, the specific cohesive markers most closely associated with coherence were different for the two groups. Among the ELL children, episodic quality depended to some extent on the inclusion of an adversative conjunction (e.g., the word but). The presence of at least one adversative conjunction was strongly and positively correlated with membership in the category of episodes among ELL children, but demonstrated a very weak association among EL1 children. The ELL children’s use of the word but marked one of two significant occurrences in the narrative, both of which were fundamental to episodic structure. The first was the point at which the fox’s intent to eat the eggs is made explicit, precipitating a plan of action on the part of one or another character. In these cases, the word but signalled the formulation of an internal response that precipitated a plan of action as in the following examples, all provided by SK ELL girls:

He was imagining that he ate the eggs but he thought that if pig arrived, then maybe he can trick him.

A fox was looking at the hen and he was wondering if there was any eggs inside the egg shells. And then that was a terrible problem. But a pig saw him and then decided to help the hen.

The hen is going to feed his eggs and then the owl is going to see the chicken but the pig is seeing them so he is going to make a prank on him.
The second significant occurrence marked by the use of an adversative conjunction was the realization on the part of the fox that it had been duped. In these cases, the word *but* signals the children’s understanding of the deception that lies at the heart of a trickster tale. The following examples, all provided by ELL children, illustrate this point:

Wolf thought it was a egg *but* it is not.

The fox thought that was the eggs *but* it was rocks, so hen and pig have a nice, nice, nice good trick.

The fox found the rocks and thought it was eggs *but* then it was not, so he tried to eat them *but* it was too hard.

On the other hand, EL1 episodic quality was moderately and positively correlated with the inclusion of a causal conjunction. Causal conjunction use was independent of story structure in the ELL narratives. In most cases, the causal conjunctions *because* and *so* served similar purposes in the EL1 narratives as the adversative conjunction *but* in the ELL narratives: to signal the formulation of an internal response that precipitated a plan of action and to indicate a reaction to the successful attempt at deception. EL1 children generated the following examples:

And then the chicken was talking to his friend pig. "I have a feeling that maybe fox would get one of my eggs *so* can you scare him away?"

Fox is thinking that he could steal the eggs and eat them *so* hen is thinking that pig might have a good idea. Here, hen should get a idea like moving the eggs somewhere else and using stones as eggs.

The fox is thinking about crushing the eggs. The pig is thinking about putting them in the basket *so* they can be safe.

The fox came and as soon as he bit it [the rock] he said, "I will get you red hen for that." And then red hen was so happy about pig *because* she saved her eggs.

While it is of no surprise that the use of cohesive markers be associated with overall narrative quality, the fact that specific subtypes of conjunctions relate differentially to the quality of the narratives of monolingual and bilingual children appears to be a novel finding. Further
research is warranted in order to test its stability and its significance. From the point of view of this discussion, however, the finding is of interest insofar as it points, once again, to differences in the pattern of ELL and EL1 performance.

Language status was not found to predict any aspect of evaluative language use, corroborating the results of Montonari (2004) who found evaluation to reflect a personal preference in narrative style that is independent of linguistic proficiency. The ELL children obtained comparable mean scores to the EL1 children on the global measure of character perspective, and they were found to include expressions of intent, metacognitive verbs, and instances of dialogue in equivalent numbers. It is interesting to note, once again, the correlational results for presence of an expression of intent. Among the EL1 children, this feature of narrative was positively and moderately correlated with PPVT scores (which were not retained in the final regression model), while among the ELL children, the two were unrelated.

Dialogue was found to be a relatively infrequent feature of the narratives, corroborating the results of Harkins and colleagues (2001) and Zevenbergen and colleagues (2003). Expressions of intent and metacognitive verbs, on the other hand, were present in unusually high numbers, occurring in approximately three quarters of the children’s stories. In order to compare the performance of this sample of children to a published sample, a rate of usage statistic was calculated for metacognitive verbs. Overall, the children generated metacognitive verbs at a rate of .29 verbs per c-unit. This figure compares with rates of .11 to .13 found by Curenton and Justice (2004) in a sample of 4- and 5-year-olds, and an average rate of .11 found by Greenhalgh and Strong (2001) for a group of typically developing 7- to 10-year-olds. Clearly, the narratives in this study incorporated higher rates of metacognitive verb use than might be expected based on previous studies.
The thought bubble format of the wordless picture book may explain this finding. It is important to keep in mind that the participants in the story generation task had previously participated in three story recall tasks based on wordless picture books that were identical in format to the book used in this study. The recall task involved a straightforward rendition of a scripted story by the researcher, followed by an unguided retelling by the child. The high rate of metacognitive verb use by both ELL and EL1 children in the generation tasks suggest that, even without explicit instruction in the function and meaning of thought bubbles, a majority of the children successfully interpreted the thought bubbles in the illustrations as depictions of a character’s inner state, rather than as depictions of characters and actions in their own right. Their lexical choices (to dream, to imagine, to decide, to wonder) reflect the vocabulary used in the recall tasks. Repeated exposure to the thought bubble format in the recall task, therefore, may have been sufficient to elicit reference to mental states in the story generation task. Wellman, Hollander and Shult (1996) found that 3- and 4-year-old children readily understood the concept of thought bubbles when offered a simple explanation of their meaning, and were able to describe them using mental state terms.

However, few ELL or EL1 children were successful in generating a story that fully integrated the psychological and physical planes depicted in the illustrations. This finding suggests that although metacognitive language is necessary in establishing psychological causation, it is insufficient to ensure young children’s elaboration of goal-based episodes. Instruction that makes explicit the interplay between the landscapes of consciousness and action, as well as the vocabulary that is particular to each, may be necessary and desirable to promote this aspect of proficiency in storytelling in kindergarten children. The use of books whose
illustrations depict both planes may be a valuable tool in supporting the initial learning of goal-based episodic structure.

Up to this point, the discussion of results has largely highlighted the similarities in ELL and EL1 outcomes with respect to narrative ability. Overall, the ELL and EL1 children demonstrated comparable levels of competency in terms of productivity, complexity, cohesion, structure, and evaluation, although evidence is available suggesting that some aspects of narrative performance are differentially related to vocabulary in the two groups. There was, however, one outcome that clearly distinguished the narratives on the basis of language status, this being morpho-syntactic quality. Overall, the EL1 children generated narratives that comprised a proportionately greater number of grammatically correct c-units than those of the ELL children. This finding supports Berman’s (2001) contention that relative to their monolingual peers, bilingual children can be expected to demonstrate limited proficiency in morpho-syntax because it is a language-specific competency. Vocabulary, which was a significant predictor of overall performance on this particular measure, was found to contribute to both ELL and EL1 outcomes. PPVT scores were strongly correlated with the grammaticality scores of the ELL children, and moderately correlated with those of the EL1 children.

The grammaticality score used in this analysis was an aggregate measure that reflected both morphological and syntactic accuracy within utterances. In future, separate indices for each of the components of grammaticality would be derived. In this way, it would be possible to conduct analyses investigating the unique contributions of syntactic and morphological competence to narrative quality, and to examine associations between the two component skills, and vocabulary and emergent reading. Alternatively, direct measures of syntactic and morphological awareness could be included in the test battery and their associations with
narrative competence examined. The relationship between vocabulary and morphological awareness, measured in the form of pencil and paper tests administered to monolingual and bilingual elementary school children, has been documented elsewhere (Beck, McKeown & Kucan, 2002; Kieffer & Lesaux, 2008). The results of the present study open the door to the possibility of similar associations among kindergarten children within the context of oral narrative.

The results for grammaticality, in conjunction with the findings related to macrostructure, meshes well with the current literature, particularly as it relates to bilingual profile effects (Oller et al., 2007). Previous studies have demonstrated the relative independence of oral narrative structure and morphosyntactic competencies (Verhoeven, 1994). This has been found to be the case in both monolingual (Feagans & Appelbaum, 1986) and bilingual school-aged children (Berman, 2001; Guttiérrez-Clellen, 2002; Pearson, 2002). The results of the present study suggest that the dissociation between these specific component language skills is also evident in the kindergarten years.

Grade, unlike language status, was found to relate to all aspects of narrative competence. The results with respect to microstructure indicated a clear developmental trend in narrative productivity between junior and senior kindergarten. These results echo the findings of Curenton and Justice (2004) in a study involving monolingual children and Uccelli and Páez (2007) in a study involving bilingual children. Developmental trends were also evident in relation to both measures of complexity, corroborating findings by Muñoz et al., (2003) with a bilingual population, and Curenton and Justice (2004) with a monolingual population. Grade-related differences favouring the older children in relation to morpho-syntax were also found in the present study, as they were in the Muñoz et al., (2003) study.
The lack of conclusive results with respect to additive and temporal conjunctions suggests that these cohesive devices are ubiquitous features of children’s narratives by the end of junior kindergarten. This is equally true of ELL and EL1 children. On the other hand, the children who included at least one causal or one adversative conjunction in their narrative were differentiated on the basis of grade. Again, the SK children demonstrated a clear advantage over the JK children in this respect. Thus, the developmental patterns in conjunction use described by Crosson et al., (2008) for middle school children were in evidence in this multi-lingual cross-section of kindergarten-aged children. They also suggest an increase in the cohesive quality of the children’s narratives over time, as one would expect based on the existing literature (Cain, 2003; Curenton & Justice, 2004; Peterson & McCabe, 1983).

All indices of macrostructure showed associations with grade, be they predictive or merely indicative of a trend. These findings corroborate a substantial body of research attesting to an increase in structural coherence in children’s narratives over time (Benson, 1993; Hughes et al., 1997; Lynch et al., 2008; Price et al., 2006; Stein & Albro, 1997). Again, similar developmental patterns were found for the ELL and EL1 children. Grade was also associated with 3 of 4 measures of evaluative language, indicating developmental trends in this area of narrative competence, as would be expected based on previous studies (Eaton et al., 1999; Harkin et al., 2001; Ukrainetz et al., 2005). The SK children were found to include a significantly greater number of expressions of intent in their stories. Grade trends favouring the SK children were found with respect to inclusion of at least one metacognitive verb and a more global measure of the children’s ability to embrace character perspective.

In summary, the results of the present study point to growth in all dimensions of storytelling ability between junior and senior kindergarten. At the same time, they suggest that
narrative competence develops at a comparable rate in ELL and EL1 children. Because of the
cross-sectional design of the study, however, these findings must be interpreted with caution.
The possibility of cohort effects cannot be ruled out.

Research Question #2

What is the relationship between performance on a concurrent measure of receptive
vocabulary (PPVT) and indices of narrative microstructure, macrostructure and evaluative
language use? The overall picture that evolves from this study suggests that the relationship
between receptive word knowledge and narrative competence is fairly limited. Vocabulary
proved to be a significant predictor of only two indices of narrative competence: grammaticality
and two markers of cohesion (the presence of a subordinating and an adversative conjunction).
Because possible PPVT by language interactions were not examined fully (the small sample size
prohibited such in-depth analyses), it is impossible to say if this overall dissociation between
word-level and discourse-level competence applies equally to first- and second-language
learners, although the results relating to complexity, cohesive ties, conjunction use, presence of
essential story grammar elements, overall episodic quality, and the likelihood of including an
expression of intent, suggest that this may not be the case. All point to a greater dissociation
between vocabulary and narrative competence among the ELL children.

Previous studies have also reported greater dissociations among the component skills of
language among bilingual children (Pearson et al., 1996). As a result of these dissociations, ELL
children are distinguished from their EL1 peers by performance profiles characterized by
patterns of discrepant outcomes (Oller et al., 2007). For example, Pearson et al., (1996) reported
“disproportionately low” (p. 11) vocabulary scores relative to scores on a number of oral
narrative dimensions in a sample of second language learners in grades 2 and 5. Ndlovu and
Geva (2008) found that the written narratives of ELL and EL1 children in grades 4 and 5 were comparable in terms of both lower order skills such as spelling and punctuation and higher order skills such as sentence structure and complexity, and overall narrative shape, despite significant differences in word-level knowledge favouring the EL1 children. The present study suggests that similar patterns of dissociation between word-level and discourse-level skills are discernible in the kindergarten years as well.

What is the possible source of the discrepancy between word-level and discourse-level skill? The research literature reviewed in Chapter One indicates that multiple facets of the home literacy environment shape children’s understanding of storytelling. In the contexts of play, storybook reading, and parent-child reminiscing, for example, children develop the range of insights and competencies necessary for conceptualizing, planning, and organizing their narrations. Word choice is but one aspect of storytelling that is learned within these contexts. It is possible that when children are required to generate stories in a vocabulary-impoverished L2, their storytelling ability is largely supported by those underlying competencies that are less dependent on language-specific word knowledge, including conceptual, procedural, and metalinguistic knowledge. A near-native-like threshold of proficiency may be required before vocabulary can be shown to relate statistically to narrative performance, since only under such a condition does it accurately reflect what children truly know or know how to do.

The work of Oller and colleagues lends some support to this view. The authors suggest that the variable patterns of ELL performance are largely a by-product of inadequate measures of word knowledge in dual-language learners (Oller, 2005; Oller & Pearson, 2002; Oller et al., 2007). They point out that research comparing the vocabularies of monolingual and bilingual children has consistently shown a bilingual disadvantage in breadth of word knowledge in each
of the bilingual’s spoken languages, a finding they attribute to the “distributed characteristic” (Oller et al., 2007, p. 192) of vocabulary. The vocabularies of bilingual children are comprised, in part, of words encoded in only one of the child’s two mental lexicons, since they are encountered and used in only one of the child’s two linguistic spheres (Umbel, Pearson, Fernández & Oller; 1992). As a result, word knowledge is “distributed” across the bilingual’s languages. The distributed characteristic is particularly evident in the vocabularies of young children. An obvious consequence of the distributed characteristic of vocabulary is that vocabulary assessments in either of the bilingual’s two languages fail to capture the full range of knowledge and experience that the bilingual brings to bear on a linguistic task, such as story generation. As such, the patterns of association between word-level and discourse-level skills may be less informative in the case of dual-language learners than they are in the case of their monolingual peers (except, perhaps, where morpho-syntax is concerned, since it is language-specific). Some support for the view that L2 storytelling ability is supported by competencies other than word knowledge is gleaned from the results relating narrative competence and emergent literacy, to be discussed in the subsequent section.

Research Question #3

What is the relationship between performance on concurrent measures of early reading achievement and indices of narrative microstructure, macrostructure, and evaluative language use? Early reading ability was predictive of several dimensions of narrative: productivity, complexity, story structure, and use of evaluative language. This study, therefore, is one of a very few that have demonstrated a predictive relationship between concurrent measures of narrative competence and emergent reading ability (Curran, 2004). The TERA Conventions subtest, TERA Alphabet subtest and TERA Total scores were found to be particularly effective
in predicting narrative outcomes; the TERA Meaning subtest, on the other hand, was not retained in any regression model.

The latter finding may seem somewhat surprising; one might reasonably expect that narrative performance in the kindergarten years predict early print comprehension, given its relationship to reading comprehension in the elementary years. The TERA Meaning subtest assesses children’s ability to infer meaning from environmental print, words, sentences, and paragraphs. As is typical for their age, the children in this study rarely advanced beyond the initial items assessing environmental print knowledge or a basic understanding of the representational nature of print (for example, understanding a printed label stands for its referent), skills that may be relatively distant from oral discourse. This study, therefore, joins the ranks of previous studies that have demonstrated that environmental print knowledge plays a minimal role in supporting language and literacy development (Sénéchal & Lefevre, 2001; Sénéchal, Lefevre, Smith-Chant & Colton, 2001).

The TERA Conventions, Alphabet and TERA Total scores were found to be highly intercorrelated; bivariate correlations among these three ranged from .74 to .91. As a result, it may be argued that, in the years prior to formal and explicit instruction in the component skills that support conventional reading, these tests assess a common, less differentiated skill or understanding that is likely borne of exposure to, or participation in, literacy-based activities. One such activity is storybook reading. Given the important role storybook reading has been shown to play in the development of narrative competence (Snow, 1999; Sulzby, 1985), it could well stand to reason that performance on the TERA acts as a proxy for degree of exposure to storybooks and familiarity with the book reading protocol. It is not inconceivable that notions such as temporality, a key element of story structure, are acquired indirectly as children
experience the turning of pages that signals the story’s progression from beginning to end, or that the vicarious joys, sorrows, and fears that children experience as they follow the adventures of their favourite storybook characters lead to talk about feelings that promote an understanding of the functions of evaluation. Future research that includes a measure of the frequency and quality of shared parent-child reading is necessary to test the conjecture that performance on the TERA in the kindergarten years acts as a proxy for home literacy practices such as shared reading.

The correlation matrices for story structure level by language group (see Appendix C) reveal a potentially telling difference with respect to the skills underlying ELL and EL1 storytelling proficiency. Moderate to high correlations were found between 3 of the 4 TERA measures and ELL story structure, a gauge of episodic quality. The corresponding EL1 correlations were weak at best. Vocabulary scores, on the other hand, were moderately correlated with EL1 story structure. Their association with ELL story structure was weak. These findings open the door to the possibility of differential relationships between emergent literacy and vocabulary in L1 and L2 narrative competence in the domain of macrostructure. They suggest that in the case of episodic quality, conceptual and procedural knowledge acquired through exposure to stories trumps deficits in second-language word knowledge.

In summary, the results of the present study indicated that L2 and L1 storytelling ability among the participant children was comparable in most respects. The one narrative feature that clearly distinguished the ELL and EL1 stories related to morphosyntactic quality; on that measure alone, an EL1 advantage was in evidence. Furthermore, the developmental trends that characterized EL1 performance across grades were largely mirrored in the ELL outcomes. The results indicated that gender plays a slightly greater role in L2 than L1 narrative competence; while the EL1 boys generally performed on par with their female counterparts, the ELL boys
showed a consistent (though rarely significant) disadvantage relative to ELL girls. Finally, the study offers some evidence that various aspects of narrative competence might be differentially related to vocabulary and emergent literacy skills in ELL and EL1 kindergarten children.

Limitations of the Study and Suggestions for Future Research

Several limitations of this study must be addressed. First, because it was cross-sectional rather than longitudinal, findings related to patterns of development in narrative competence need be tempered with caution. Ideally, children would have been followed from junior to senior kindergarten to minimize between-subjects effects. Time constraints, coupled with administrative restrictions at the university and school board level, made this impossible to do. In future research, every effort should be made to follow the same participant children as they progress from junior to senior kindergarten.

A further limitation relates to the extent to which the participant children were representative of the broader school populations from which they were drawn. The families who agreed to have their child participate in the narrative task were a subsample of families who had chosen to receive a school-based family literacy intervention that aimed to support parents in their role as early literacy mentors. Not all families did, in fact, attend the family literacy sessions. However, in choosing to participate in the programme, all parents indicated a particular interest in, and commitment to, their children’s early reading and writing development. It is possible that the home environments of these children reflected greater parental provision of literacy-based experiences than one might expect to find in the broader population, positively impacting child language and literacy outcomes. As a result, it is difficult to determine whether the present findings can be generalized to a broader population. Nevertheless, this population was representative of the large immigrant population in the Greater Toronto Area.
Another limitation relates to measures. No measure of nonverbal ability was included in the test battery to act as a covariate in the regression analyses. As a result, it is impossible to say in any definitive way if outcomes are in fact due to the dependent variables under study or to extraneous factors. Furthermore, mother’s education data were not available for the full sample. Mother’s education (a proxy for socio-economic status) is known to exert an influence on children’s language and literacy outcomes (Dickinson & Tabors, 2001). In future, measures of both nonverbal ability and mother’s education level will be included in the test battery (necessitating, of course, a larger sample). As well, subsequent studies will include a home literacy environment measure that acts as a control for exposure to print.

Because of the relatively small sample size, only main effects for PPVT and TERA were examined. The possibility that receptive vocabulary and early reading ability interact with language, grade, and gender in different ways cannot be excluded. The small sample size also restricted a full examination of possible differences in prediction patterns between the ELL and EL1 children. The present study offered some evidence that various aspects of ELL and EL1 narrative competence may be differentially associated with receptive vocabulary and early reading ability. However, a substantially larger sample is required to further explore these associations.

The present study employed strictly quantitative research methods and focused exclusively on outcomes, a worthwhile first step given the dearth of research on ELL narrative competence. However, research of this type leaves wide open a vital question: How and why do children generate the stories they do? This question is of particular importance for educators of young children as it could serve to guide instruction in story production and comprehension. A potentially interesting and informative approach to the study of storytelling might focus instead
on process and involve both quantitative and qualitative research methods. One might, for example, analyse the think aloud protocols generated as the children engage in the initial picture walk through the wordless book or probe their thinking through questioning. Providing the children with appropriate scaffolding in the form of judicious questions and comments would allow one to evaluate competency rather than performance in a way that coincides with educational practice. Alternately, one could require the children to work in pairs to negotiate the overall storyline and specific details of the story they will tell. The conversations generated by the children during the negotiation process, as well as the actual narrative, would be the subjects of subsequent analysis. Ideally, the children would be provided the opportunity to narrate their story for the benefit of an audience, such as a classmate of their choice, to optimize the ecological validity of the story generation task.

Given the importance of narrative competence to reading comprehension in the elementary school years, future research investigating the relationship between concurrent measures of narrative production and comprehension would be valuable. A comparison of performance on a story retell and a story generation task, for example, would allow for a comparison of the developmental trajectories of production and comprehension over the kindergarten years, a question of particular interest when working with a group of children for whom English is an additional language.

Finally, the present study focused largely on the following questions: Who is a proficient storyteller? Are ELL children as proficient as their EL1 peers in storytelling? Is this true regardless of age or gender? Future research might turn the spotlight away from the teller and onto the story itself and ask: What does a well-crafted story look like in the kindergarten years? What elements of microstructure and evaluative language predict episodic structure? Preliminary
analyses based on the database used in the present study suggest that the model that best predicts membership in the category of episodes includes an index of productivity (number of different words), an index of complexity (inclusion of at least one complex c-unit), an index of cohesion (inclusion of at least one adversative conjunction) and an index of evaluative language use (number of references to character perspective). Working with a larger sample, it would be possible to compare the models obtained for ELL and EL1 children. Comparisons of models obtained longitudinally for each group would be of particular interest.

Implications of this Thesis for Practice

The family literacy intervention we developed included key messages delivered to parents to increase their awareness of the important role they played in supporting their children’s language and literacy development. One message was repeated week in and week out: talk, read, sing, narrate, and play with your child in the language in which you are most proficient, whether or not that language is the majority language. We had often heard minority language parents express concern that the use of their home language in parent-child interactions around literacy may be detrimental to their child’s early reading and writing development in English. They feared that their children would enter kindergarten at a disadvantage relative to majority language speakers, and that they would be unprepared to successfully tackle the challenge of learning to read in a language to which they had minimal exposure in the home. We felt it was essential that parents be reassured of the value of speaking and reading to their children in the language in which they are most proficient and that they understand that the practice of maintaining their first language would not negatively influence their children’s early school success. Based on the extant research, we felt confident in telling parents that children who had been the beneficiaries of rich language and literacy
experiences in their home language would learn to apply the knowledge and skills gained in their early years to the second-language learning situation. However, the extant literature offered little to inform our position with respect to the development of narrative competence in ELL children. The results of the present study, as modest as they are, provide evidence that by the end of senior kindergarten, ELL children’s storytelling ability is comparable in most ways to that of their EL1 peers, setting them in good stead to begin formal reading instruction in grade one.

However, while the ELL children demonstrated relative competence in English narrative by the end of their second year of kindergarten, it does not follow that home languages other than English do not have their place in a kindergarten classroom. An ideal learning environment would provide the ELL children with the opportunity to consolidate or expand the language base on which narrative skill in their second language is built. Inclusive practices that honour the linguistic traditions brought to the classroom, such as using dual-language books – or providing children with the opportunity to author their own dual-language books – and encouraging socio-dramatic play in a shared home language, may serve this purpose. The work of Cummins (Cummins et al., 2005) attests to the linguistic, cognitive, and social-emotional benefits of welcoming students’ home language into the school.

The findings of this study also point to the importance of storybook reading in the home and kindergarten classroom as a means of promoting narrative competence. Research demonstrates that through exposure to well-crafted stories, children develop familiarity with the language and structure of narrative, the tools needed to both produce and comprehend stories (Teale & Sulzby, 1999). Research also demonstrates the value of storybook reading in developing word knowledge, an essential component of reading and writing, and one which
posed a particular challenge for the ELL children in this study (Bus et al., 1995; Sénéchal & Lefevre, 2002). However, as Dickinson, Darrow and Tinubu (2008) point out, in order to realize the learning potential of storybook read-alouds with young children, parents and teachers must learn to play the role of mediator. Family literacy programming and teacher professional development that explicitly train parents, caregivers, and educators in the art of mediating storybook reading with young children are essential. Techniques such as those that form the basis of dialogic reading show particular promise in supporting the development of narrative competence (Whitehurst, Arnold, Epstein, Angell, Smith, & Fischel, 1994, Zevenbergen et al., 2003) as do storybook-based approaches to teaching narrative structure (Morrow, 1985; Stevens, Van Meter & Warcholak, 2010).

The research of Catherine Snow and colleagues (Snow, 1999) underscores the importance of actively involving children in the storytelling process as a means of promoting narrative competence. Thus, it is vital that kindergarten classrooms offer children opportunities to tell their stories, as well as an open and receptive audience to hear them. Research evaluating school curricula that include storytelling and story enactment as integral parts of the school day has shown such practices to be beneficial to the development of narrative competence (Baumer, Ferholt & Lecusay, 2005; Nicolopoulou & Richner, 2007). Again, in multi-lingual classrooms, it may be beneficial to allow children the opportunity to engage in such activities in their first language as well as in the majority language.

Finally, the research literature attests to the importance of play as a means of promoting narrative development (Engel, 2005), pointing to the importance of incorporating socio-dramatic and thematic fantasy play in early years programming. Through such play, children are afforded the opportunity to construct eventcasts that are increasingly characterized by the use of
decontextualized language, making them increasingly written-language like. Research evaluating the benefits of teacher-guided play has shown positive effects with respect to the development of language and literacy skills (Roskos & Christie, 2001).

Conclusion

Given the diverse cultural and linguistic makeup of Toronto’s classrooms, it is imperative that the potential challenges and obstacles to academic success that English language learners face be identified. The acquisition of decontextualized language is one of those challenges, beginning in kindergarten. This study was a modest step toward the establishment of performance indicators for a multi-lingual sample of ELL preschoolers in the area of narrative skill development over the kindergarten years. The results highlight the relative strengths of L2 storytelling, and point to areas of relative weakness. They hint at the important role early language and literacy experiences play in fostering narrative competence, and suggest home and classroom literacy practices that support discourse development in the child’s home language while nurturing proficiency in a second language skill that is essential for academic success.
References


ability in narrative samples. *Reading & Writing Quarterly, 23*, 287 — 309


Ukrainetz, T.A., Justice, L.M., Kaderavek, J.N., Eisenberg, S.L., Gillam, R.B., & Harm,


Olson & N. Torrance (Eds.) *Literacy, language and learning* (pp. 229-255). Cambridge, MA: Cambridge University Press.


Appendices

Appendix A: The Narrative Elicitation Task
Appendix B: Sample Stories by Story Structure Level

Descriptive sequence

JK EL1 Boy

The chicken laid one, two, three, four, five eggs.
The fox play with his eggs.
And the pig play with the stones.
And the chicken play with the pig with the stones.
And the fox play with the stones.
And pig and the chicken was playing.

SK EL1 Girl

I see a hen laying her eggs.
The fox is walking.
The pig is walking and saw a purse with eggs in it.
Hen is on the purse of eggs.
The pig got one egg in his mouth.
The fox took a egg and put it in his mouth.
The pig and the hen is not.

Action sequence

JK ELL Girl

He is hatching a egg.
Then the egg comed out.
Then a pig found some rocks.
And the pig put them in the mouth.
Then the fox came and saw some eggs.
Then the hen came
and he saw the pig laying down.

SK EL1 Boy

The eggs are going to hatch.
And then the fox is going to swipe the eggs.
The pig is going to eat the eggs.
And the egg looks good.
He is still eating them now.
And the fox is putting them in.
Reactive Sequence

JK EL1 Girl

The chicken is thinking about having two little chicks.  
The wolf wants to eat the eggs  
and the chicken has her friend the pig.  
The pig sees a basket full of eggs  
and she wonders whose it is  
and the pig thinks that it is the chicken’s.  
The pig picks up a rock and tells the chicken if those eggs were hers.  
The fox sees the eggs of the nest.  
That is where the mommy chick putted them  
so he takes one.  
And they live happily ever after.

SK ELL Girl

The chicken have the one, two, three, four, five egg  
and the other chicken yellow come out today.  
The wolf saw it  
and the pig did like this (makes an angry face)  
and then the wolf say, “Awooo…”  
And then the pig saw the wolf on the basket  
and mama bird was say, “No, that is my basket  
and it have something in there.”  
And then mommy chicken say, “This is my basket  
and I am taking it home.”  
Then she get angry,  
And then the wolf put the rock on the nest  
and the chicken just did like this.  
The pig was lying like this.

Abbreviated Episode

JK ELL Boy

The hen is laying a egg.  
Wolf will crack it.  
Pig want to get some rocks.  
Get some rocks right over here.  
Wolf thought it was a egg  
but it is not.  
Chicken say thanks to pig
SK EL1 Boy

Hen is thinking of laying the eggs.
Fox is thinking of breaking the eggs and eating them.
Hen is thinking pig could protect the eggs.
Hen is going to make pig protect the eggs.
Fox got a egg.
Hen does not know where the eggs went.

Incomplete Episode

JK ELL Boy

The chicken thinking the egg can turn into a few more chickens.
The fox think he could ate the egg.
The chicken friend’s pig it thinks it could take the egg away and put some rocks.
And he is thinking the fox could eat the rock.
The fox might real eat the rock.
And now they both happy.

SK ELL Girl

She has tried to think that she will have some baby chicks.
And the fox will try imagining to try to eat the eggs.
And pig try to get the eggs for she can’t eat.
And so she said to the hen, “Can we have your eggs?”
“Here is another egg for you.”
And fox thought that was the eggs
but it was rocks.
So hen and pig was have a nice, nice, nice good trick.

Complete Episode

SK ELL Girl

One day this bird haded 4 eggs
And she was imagining how could she do with the little cubs.
And then fox arrived and looked at the eggs.
He was imagining that he ate the eggs
But he thought that if pig arrived, then maybe he can trick him.
Then pig arrived, actually
And then the bird asked the pig, “What should I do with the eggs
because maybe fox can arrive and eat the eggs
and now I am going to the store?”
And so then, pig got some rocks outside
And then he put some rocks
And then he tooked the eggs in his home
And then if a fox arrives, he will eat the rocks.
And then they putted the rocks in the nest
And then pig took the basket with the eggs
And then the bird could go and get some things to eat.
And then fox arrived,
and he thought that that was real eggs
And then he was trying to eat it.
And then he was sick.
And then the bird and the pig lived happily ever after.

JK EL1 Girl

The hen is laying eggs
and she is hoping that they will be little chicks.
But then a wolf is thinking about finding a hen that laid eggs
and he will eat them.
But then the hen find a pig and asked it for help
but it said no because it was going to eat lunch.
And then it ate lunch,
then it helped the hen.
And then the fox ate lunch
and then he was not hungry,
then he did not want to eat eggs.
And then the hen and the pig had a nice rest.
Table C-1
Bivariate and Point-Biserial Correlations Among PPVT, TERA and Indices of Productivity and Complexity for EL1 Children

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Note: N=44. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; TNW = Total Number of Words; NC-U = Number of C-Units; NTARN = Number of Target Nouns; NDW = Number of Different Words; MLCU-W = Number of C-Units in Words; COMPLEX = Complex C-Unit Present/Absent; PC-U_GC = Proportion of Grammatically Correct C-Units

**p < .01, *p < .05
Table C-2

Bivariate and Point-Biserial Correlations Among PPVT, TERA and Indices of Productivity and Complexity for ELL Children

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**p < .01, *p < .05
Table C-3

**Bivariate and Point-Biserial Correlations Among PPVT, TERA and Indices of Cohesion for the ELL Children**

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**p < .01, *p < .05**

Table C-4

**Bivariate and Point-Biserial Correlations Among PPVT, TERA and Indices of Cohesion for the ELI Children**

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Note: N=44. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; COORD = Coordinating Conjunction Present/Absent; SUBORD = Subordinating Conjunction Present/Absent; ADD = Additive Conjunction Present/Absent; TEMP = Temporal Conjunction Present/Absent; CAUSAL = Causal Conjunction Present/Absent; ADVERS = Adversative Conjunction Present/Absent

**p < .01, *p < .05**
### Table C-5

*Bivariate Correlations Among PPVT, TERA, Essential Elements of Story Grammar and Story Structure Level for ELL Children*

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Note: *N=43. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; SG_ESEL = Essential Story Grammar Elements; SS_LEVEL = Story Structure Level

**p < .01, *p < .05

### Table C-6

*Bivariate Correlations Among PPVT, TERA, Elements of Story Grammar and Story Structure Category for EL1 Children*

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Note: *N=44. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; SG_ESEL = Essential Story Grammar Elements; SS_LEVEL = Story Structure Level

**p < .01, *p < .05
Table C-7

Bivariate and Point-Biserial Correlations Among Predictor Variables and Elements of Evaluative Language for ELL Children

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Note: N=43. PPVT = Peabody Picture Vocabulary Test; TERA = Test of Early Reading Ability; TERA_A = Alphabet Subtest; TERA_C = Conventions Subtest; TERA_M = Meaning Subtest; TERA_T = Total Score; SSL = Story Structure Level; SS_CAT = Story Structure Category; EVAL_IN = Expression of Intent Present/Absent; EVAL_MC = Metacognitive Verb Present/Absent; EVAL_MOD = Modifier Present/Absent; EVAL_DI = Dialogue Present/Absent; PERSPECT = Perspective Total Score

**p < .01, *p < .05

Table C-8

Bivariate and Point-Biserial Correlations Among Predictor Variables and Elements of Evaluative Language for ELL Children

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**p < .01, *p < .05
Appendix D: Results Tables for Indices of Microstructure, Macrostructure and Evaluative Language Use

Table D-1

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<thead>
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<th>GZLM Regression Diagnostics Predicting Total Number of Words</th>
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\( N = 85 \)

+ Likelihood ratio chi-square test for the model
++ \( p \)- value for the Likelihood ratio chi-square for the model

Table D-2

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\( N = 86 \)

+ Likelihood ratio chi-square test for the model
++ \( p \)- value for the Likelihood ratio chi-square for the model

Table D-3

<table>
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\( N = 85 \)

+ Likelihood ratio chi-square test for the model
++ \( p \)- value for the Likelihood ratio chi-square for the model
Table D-4

**GZLM Regression Diagnostics Predicting Number of Target Nouns**

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<th>AIC&lt;sub&gt;C&lt;/sub&gt;</th>
<th>AIC&lt;sub&gt;C&lt;/sub&gt;</th>
<th>ΔAIC&lt;sub&gt;C&lt;/sub&gt;</th>
<th>χ²⁺</th>
<th>P Value ++</th>
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N = 86

+ Likelihood ratio chi-square test for the model

++ p- value for the Likelihood ratio chi-square for the model

Table D-5

**GZLM Regression Diagnostics Predicting Mean Length of C-Units in Words**

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<th>AIC&lt;sub&gt;C&lt;/sub&gt;</th>
<th>ΔAIC&lt;sub&gt;C&lt;/sub&gt;</th>
<th>χ²⁺</th>
<th>P Value ++</th>
</tr>
</thead>
<tbody>
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N = 85

+ Likelihood ratio chi-square test for the model

++ p- value for the Likelihood ratio chi-square for the model

Table D-6

**Logistic Regression Diagnostics Predicting Inclusion of a Complex C-Unit**

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<th>Wald χ²⁺</th>
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<th>H-L‡</th>
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<td>.22</td>
<td>15.34</td>
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N = 87

+ Wald chi-square test for the model

++ p- value for the Wald chi-square for the model

‡ p-value for the Hosmer-Lemeshow chi-square test for goodness of model fit
### Table D-7
**Classification Tables for Complex C-Unit Present/Absent**

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N = 87

### Table D-8
**GZLM Regression Diagnostics Predicting Proportion of Grammatically Correct C-Units**

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<th>AIC&lt;sub&gt;C&lt;/sub&gt; (Final model)</th>
<th>ΔAIC&lt;sub&gt;C&lt;/sub&gt;</th>
<th>χ²&lt;sup&gt;p&lt;/sup&gt;</th>
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N = 85

+ Likelihood ratio chi-square test for the model
++ p-value for the Likelihood ratio chi-square for the model

### Table D-9
**Logistic Regression Diagnostics Predicting Inclusion of a Subordinating Conjunction**

<table>
<thead>
<tr>
<th></th>
<th>Nagelkerke R&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Wald χ²&lt;sup&gt;p&lt;/sup&gt;</th>
<th>P Value ++</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.38</td>
<td>28.62</td>
<td>.000</td>
<td>.323</td>
</tr>
</tbody>
</table>

N = 86

+ Wald chi-square test for the model
++ p-value for the Wald chi-square for the model
‡ p-value for the Hosmer-Lemeshow chi-square test for goodness of model fit
Table D-10

*Classification Tables for Subordinating Conjunction Present/Absent*

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
<td>Present</td>
</tr>
<tr>
<td>Null Model</td>
<td>Absent</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Present</td>
<td>37</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Model</td>
<td>Absent</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Present</td>
<td>13</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*N = 86*

Table D-11

*Logistic Regression Diagnostics Predicting Inclusion of a Causal Conjunction*

<table>
<thead>
<tr>
<th></th>
<th>Nagelkerke R²</th>
<th>Wald χ²</th>
<th>P Value</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.14</td>
<td>8.03</td>
<td>.018</td>
<td>.950</td>
</tr>
</tbody>
</table>

*N = 87*

+ Wald chi-square test for the model
++ p-value for the Wald chi-square for the model
‡ p-value for the Hosmer-Lemeshow chi-square test for goodness of model fit

Table D-12

*Logistic Regression Diagnostics Predicting Inclusion of an Adversative Conjunction*

<table>
<thead>
<tr>
<th></th>
<th>Nagelkerke R²</th>
<th>Wald χ²</th>
<th>P Value</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.24</td>
<td>12.32</td>
<td>.006</td>
<td>.659</td>
</tr>
</tbody>
</table>

*N = 87*

+ Wald chi-square test for the model
++ p-value for the Wald chi-square for the model
‡ p-value for the Hosmer-Lemeshow chi-square test for goodness of model fit
Table D-13

Classification Tables for Adversative Conjunction Present/Absent

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th></th>
<th>Predicted</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
<td>Present</td>
<td>Percent Correct</td>
<td></td>
</tr>
<tr>
<td>Null Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>75</td>
<td>0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>12</td>
<td>0</td>
<td>.0</td>
<td></td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>86.2</td>
<td></td>
</tr>
<tr>
<td>Final Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>75</td>
<td>0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>10</td>
<td>2</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>88.5</td>
<td></td>
</tr>
</tbody>
</table>

N = 87

Table D-14

Logistic Regression Diagnostics Predicting the Inclusion of a Setting

<table>
<thead>
<tr>
<th>Nagelkerke R²</th>
<th>Wald χ²</th>
<th>P Value</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>.31</td>
<td>18.22</td>
<td>.000</td>
<td>.141</td>
</tr>
</tbody>
</table>

N = 87

+ Wald chi-square test for the model
++ p-value for the Wald chi-square for the model
‡ p-value for the Hosmer-Lemeshow chi-square test for goodness of model fit

Table D-15

Classification Tables for Setting Present/Absent

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th></th>
<th>Predicted</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
<td>Present</td>
<td>Percent Correct</td>
<td></td>
</tr>
<tr>
<td>Null Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>0</td>
<td>16</td>
<td>.0</td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>0</td>
<td>71</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>81.6</td>
<td></td>
</tr>
<tr>
<td>Final Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>5</td>
<td>11</td>
<td>34.8</td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>4</td>
<td>67</td>
<td>94.4</td>
<td></td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>82.8</td>
<td></td>
</tr>
</tbody>
</table>

N = 87
Table D-16

**Logistic Regression Diagnostics Predicting Inclusion of an Initiating Event**

<table>
<thead>
<tr>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2$</th>
<th>P Value ++</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>.17</td>
<td>10.49</td>
<td>.001</td>
<td>.354</td>
</tr>
</tbody>
</table>

$N = 87$
+ Wald chi-square test for the model
++ $p$-value for the Wald chi-square for the model
‡ $p$-value for the Hosmer-Lemeshow chi-square test for goodness of model fit

Table D-17

**Classification Tables for Initiating Event Present/Absent**

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
<td>Present</td>
<td>Percent Correct</td>
</tr>
<tr>
<td>Null Model</td>
<td>Absent</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Present</td>
<td>0</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Overall Percentage</td>
<td></td>
<td>73.6</td>
</tr>
<tr>
<td>Final Model</td>
<td>Absent</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Present</td>
<td>4</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Overall Percentage</td>
<td></td>
<td>79.3</td>
</tr>
</tbody>
</table>

$N = 87$

Table D-18

**Logistic Regression Diagnostics Predicting Inclusion of an Internal Response**

<table>
<thead>
<tr>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2$</th>
<th>P Value ++</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>.17</td>
<td>11.11</td>
<td>.004</td>
<td>.572</td>
</tr>
</tbody>
</table>

$N = 87$
+ Wald chi-square test for the model
++ $p$-value for the Wald chi-square for the model
‡ $p$-value for the Hosmer-Lemeshow chi-square test for goodness of model fit
Table D-19

*Classification Tables for Internal Response Present/Absent*

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
<td>Present</td>
<td></td>
</tr>
<tr>
<td><strong>Null Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>59</td>
<td>0</td>
<td>100.0</td>
</tr>
<tr>
<td>Present</td>
<td>28</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td>67.8</td>
</tr>
<tr>
<td><strong>Final Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>52</td>
<td>7</td>
<td>88.1</td>
</tr>
<tr>
<td>Present</td>
<td>19</td>
<td>9</td>
<td>32.1</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td>70.1</td>
</tr>
</tbody>
</table>

N = 87

Table D-20

*Logistic Regression Diagnostics Predicting Inclusion of an Attempt*

<table>
<thead>
<tr>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2$</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>.10</td>
<td>5.91</td>
<td>.015</td>
</tr>
</tbody>
</table>

N = 87

+ Wald chi-square test for the model
++ $p$- value for the Wald chi-square for the model

Table D-21

*Logistic Regression Diagnostics Predicting Inclusion of a Consequence*

<table>
<thead>
<tr>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2$</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>.10</td>
<td>5.91</td>
<td>.015</td>
</tr>
</tbody>
</table>

N = 87

+ Wald chi-square test for the model
++ $p$- value for the Wald chi-square for the model
Table D-22

*Logistic Regression Diagnostics for Inclusion of a Response*

<table>
<thead>
<tr>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2$</th>
<th>P Value ++</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>.07</td>
<td>4.44</td>
<td>.035</td>
<td>.868</td>
</tr>
</tbody>
</table>

$N = 87$

+  Wald chi-square test for the model
++ $p$-value for the Wald chi-square for the model
‡ $p$-value for the Hosmer-Lemeshow chi-square test for goodness of model fit

Table D-23

*GZLM Regression Diagnostics for Essential Story Grammar Elements*

<table>
<thead>
<tr>
<th>AIC$_C$ (Null Model)</th>
<th>AIC$_C$ (Final model)</th>
<th>$\Delta$AIC$_C$</th>
<th>$\chi^2$</th>
<th>P Value ++</th>
</tr>
</thead>
<tbody>
<tr>
<td>261.39</td>
<td>247.01</td>
<td>14.38</td>
<td>18.73</td>
<td>.000</td>
</tr>
</tbody>
</table>

$N = 86$

+  Likelihood ratio chi-square test for the model
++ $p$-value for the Likelihood ratio chi-square for the model

Table D-24

*Logistic Regression Diagnostics Predicting Story Structure Category*

<table>
<thead>
<tr>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2$</th>
<th>P Value ++</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>.15</td>
<td>9.61</td>
<td>.008</td>
<td>.435</td>
</tr>
</tbody>
</table>

$N = 85$

+  Wald chi-square test for the model
++ $p$-value for the Wald chi-square for the model
‡ $p$-value for the Hosmer-Lemeshow chi-square test for goodness of model fit
Table D-25

*Classification Tables for Story Structure Category*

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sequences</td>
<td>Episodes</td>
<td></td>
</tr>
<tr>
<td><strong>Null Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sequences</td>
<td>58</td>
<td>0</td>
<td>100.0</td>
</tr>
<tr>
<td>Episodes</td>
<td>27</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>68.2</td>
</tr>
<tr>
<td><strong>Final Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sequences</td>
<td>54</td>
<td>4</td>
<td>93.1</td>
</tr>
<tr>
<td>Episodes</td>
<td>18</td>
<td>9</td>
<td>33.3</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>74.1</td>
</tr>
</tbody>
</table>

N = 85

Table D-26

*Logistic Regression Diagnostics Predicting Inclusion of an Expression of Intent*

<table>
<thead>
<tr>
<th></th>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2+$</th>
<th>P Value ++</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.21</td>
<td>12.70</td>
<td>.000</td>
<td>.882</td>
</tr>
</tbody>
</table>

N = 87

+ Wald chi-square test for the model
++ $p$-value for the Wald chi-square for the model
‡ $p$-value for the Hosmer-Lemeshow chi-square test for goodness of model fit

Table D-27

*Classification Tables Expression of Intent Present/Absent*

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
<td>Present</td>
<td></td>
</tr>
<tr>
<td><strong>Null Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>0</td>
<td>20</td>
<td>.0</td>
</tr>
<tr>
<td>Present</td>
<td>0</td>
<td>67</td>
<td>100.0</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>77.0</td>
</tr>
<tr>
<td><strong>Final Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>5</td>
<td>15</td>
<td>25.0</td>
</tr>
<tr>
<td>Present</td>
<td>4</td>
<td>63</td>
<td>94.0</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>78.2</td>
</tr>
</tbody>
</table>

Note: N = 87
Table D-28

_Logistic Regression Diagnostics Predicting Inclusion of a Metacognitive Verb_

<table>
<thead>
<tr>
<th></th>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2$+</th>
<th>P Value ++</th>
<th>H-L‡</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.45</td>
<td>31.41</td>
<td>.000</td>
<td>.227</td>
</tr>
</tbody>
</table>

$N = 87$

Table D-29

_Classification Tables for Metacognitive Verb Present/Absent_

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absent</td>
<td>Present</td>
<td></td>
</tr>
<tr>
<td>Null Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>0</td>
<td>21</td>
<td>.0</td>
</tr>
<tr>
<td>Present</td>
<td>0</td>
<td>66</td>
<td>100.0</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>75.9</td>
</tr>
<tr>
<td>Final Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td>11</td>
<td>10</td>
<td>52.4</td>
</tr>
<tr>
<td>Present</td>
<td>4</td>
<td>62</td>
<td>93.9</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td>83.9</td>
</tr>
</tbody>
</table>

$N = 87$

Table D-30

_Logistic Regression Diagnostics Predicting Inclusion of Dialogue_

<table>
<thead>
<tr>
<th></th>
<th>Nagelkerke $R^2$</th>
<th>Wald $\chi^2$+</th>
<th>P Value ++</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.12</td>
<td>6.98</td>
<td>.008</td>
</tr>
</tbody>
</table>

$N = 87$

+ Wald chi-square test for the model
++ p- value for the Wald chi-square for the model
‡‡ p-value for the Hosmer-Lemeshow chi-square test for goodness of model fit
Table D-31

**GZLM Regression Diagnostics Predicting Perspective Total Score**

<table>
<thead>
<tr>
<th>AIC&lt;sub&gt;C&lt;/sub&gt; (Null Model)</th>
<th>AIC&lt;sub&gt;C&lt;/sub&gt; (Final model)</th>
<th>Δ AIC&lt;sub&gt;C&lt;/sub&gt;</th>
<th>χ^2</th>
<th>P Value ++</th>
</tr>
</thead>
<tbody>
<tr>
<td>386.72</td>
<td>372.57</td>
<td>14.15</td>
<td>16.29</td>
<td>.000</td>
</tr>
</tbody>
</table>

N = 87

+ Likelihood ratio chi-square test for the model

++ p-value for the Likelihood ratio chi-square for the model
Appendix E: Supplementary Analyses

Supplementary Analyses for Indices of Microstructure

Total Number of Words

To ensure that PPVT scores in the final model did not mask differences due to language, supplementary analyses were conducted for total number of words. A Mann-Whitney U test revealed no significant difference in the median number of words in the ELL (Md = 59, n = 43) and EL1 (Md = 59, n = 44) narratives. However, the ELL narratives (SD = 32.24) demonstrated more variability than the EL1 narratives (SD = 23.45).

Number of Target Nouns

To ensure that PPVT and TERA scores in the final model did not mask differences due to grade, supplementary analyses were conducted for number of target nouns. An independent samples t-test comparing the mean number of target nouns in the ELL (M = 5.35, SD = 1.25) and EL1 (M = 5.50, SD = 1.30) narratives revealed no significant differences due to language (t(85) = -.55, ns). An independent samples t-test comparing the mean number of target nouns in the JK (M = 5.36, SD = 1.22) and SK (M = 5.48, SD = 1.30) narratives revealed no significant differences due to grade (t(85) = -.44, ns).

Complex C-Unit Present/Absent

Because the TERA_C was retained in the regression model predicting the presence of at least one complex c-unit, a chi-square analysis was conducted to determine if differences due to grade were masked by its presence. There was a significant difference in the proportion of JK and SK narratives that included at least one complex c-unit ($\chi^2(1, N = 87) = 4.26, p < .05$). 75%
of the SK narratives included at least one complex c-unit, compared with 54% of the JK narratives.

Proportion of Grammatically Correct C-Units

Because the final regression model predicting the proportion of grammatically correct c-units included PPVT scores, a subsequent analysis was conducted to determine if grade-related differences were masked by its presence. An independent samples Mann-Whitney U test revealed significant differences between the proportion of grammatically correct c-units found in the JK (Md = .62, n = 39) and SK (Md = .83, n = 48) narratives (p < .05).

Subordinating Conjunction Present/Absent

To ensure that PPVT scores in the final model predicting the presence of at least one subordinating conjunction did not mask significant differences due to language, a chi-square analysis was conducted to compare the proportion of ELL and EL1 narratives that included at least one subordinating conjunction. The difference due to language was not significant ($\chi^2 (1, N = 86) = 2.67, ns$). However, 52% of the EL1 narratives included at least one subordinating conjunction compared with 35% of the ELL narratives, suggesting a trend in favour of the EL1 group.

Adversative Conjunction Present/Absent

Since PPVT scores were retained in the final model predicting the presence of at least one adversative conjunction, chi-square analyses were conducted to determine if differences due to grade were masked by its presence. A significant difference in the proportion of JK and SK narratives that included at least one adversative conjunction were found ($\chi^2 (1, N = 87) = 4.46, p$
While only 5% of the JK narratives featured at least one adversative conjunction, 21% of the SK narratives did so.

Supplementary Analyses for Indices of Macrostructure

Elements of Story Grammar

Since TERA scores were retained in the models predicting inclusion of a setting, an initiating event, an internal response and reactions, supplementary chi-square analyses were conducted to determine if differences due to grade were masked by their presence. The only significant difference was in the proportion of JK and SK narratives that included an initiating event ($\chi^2 (1, N = 87) = 7.73, p < .01$). 59% of the JK narratives included an initiating event, compared with 85% of the SK narratives. However, developmental trends were apparent in relation to inclusion of a setting (74% of JK narratives as compared with 87% of SK narratives), an internal response (28% of JK narratives as compared with 35% of SK narratives) and reactions (15% of JK narratives and 31% of SK narratives).

Story Structure Category

Because the TERA conventions subtest was retained in the regression model predicting story structure category (sequence or episode), subsequent analyses were conducted to determine whether differences due to grade were masked by its presence. A chi-square analysis revealed a significant difference in the proportion of JK and SK children whose narrative fell in the category of episodes ($\chi^2 (1, N = 85) = 5.65, p < .05$). 18% of the JK narratives were scored as episodes, compared with 42% of the SK narratives.
Supplementary Analyses for Evaluative Language Use

Since TERA scores were retained in most models of evaluative language use, subsequent analyses were conducted to determine whether there were differences due to grade that were masked by their presence. A chi-square analysis revealed significant differences in the proportion of JK and SK narratives that included at least one expression of intent ($\chi^2(1, N = 87) = 4.27, p < .05$). 67% of the JK narratives included at least one expression of intent, compared with 85% of the SK narratives. The chi-square for inclusion of at least one metacognitive verb just failed to reach significance ($\chi^2(1, N = 87) = 3.26, p = .07$). 67% of the JK narratives included at least one metacognitive verb, compared with 83% of the SK narratives, suggesting a developmental trend. A Mann-Whitney U-test comparing the median perspective scores for the JK ($Md = 3, n = 39$) and SK children ($Md = 4, n = 48$) also just failed to reach significance ($p = .06$).
### Table F1

**Descriptive Statistics for All Narrative Variables**

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<thead>
<tr>
<th>Variable Label</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Skewness</th>
<th>S.E.</th>
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Note: $N = 87$. TNW = Total Number of Words; NDW = Number of Different Words; NTARN = Number of Target Nouns; NC-U = Number of C-Units; MLC-UW = Mean Length of C-Units in Words; PC-UGC = Proportion of Grammatically Correct C-Units; COORD_F = Number of Coordinating Conjunctions; SUBORD_F = Number of Subordinating Conjunctions; ADD_F = Number of Additive Conjunctions; TEMP_F = Number of Temporal Conjunctions; CAUSAL_F = Number of Causal Conjunctions; ADV_F = Number of Adversative Conjunctions; COMPLEX_F = Number of Complex C-Units; EVAL_IN_F = Number of Expressions of Intent; EVAL_COG_F = Number of Metacognitive Verbs; PERSPECT = Character Perspective Total Score; EVAL_MOD_F = Number of Modifiers; EVAL_LING_F = Number of Linguistic Verbs; SG_ESEL = Number of Essential Story Grammar Elements; SSL = Story Structure Level