Portland State University

PDXScholar

Dissertations and Theses

Dissertations and Theses

10-25-1993

A Study of the Narrative Skills in 6-year-olds with Normal, Impaired, and Late Developing Language

Karen Elaine Johnson
Portland State University

Follow this and additional works at: https://pdxscholar.library.pdx.edu/open_access_etds

Part of the [Speech and Rhetorical Studies Commons](#)

Let us know how access to this document benefits you.

Recommended Citation

Johnson, Karen Elaine, "A Study of the Narrative Skills in 6-year-olds with Normal, Impaired, and Late Developing Language" (1993). *Dissertations and Theses*. Paper 4595.
<https://doi.org/10.15760/etd.6479>

This Thesis is brought to you for free and open access. It has been accepted for inclusion in Dissertations and Theses by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: pdxscholar@pdx.edu.

AN ABSTRACT OF THE THESIS OF Karen Elaine Johnson for the Master of Science in Speech Communication: Speech and Hearing Science presented October 25, 1993.

Title: A Study of the Narrative Skills in 6-year-olds With Normal, Impaired, and Late Developing Language

APPROVED BY MEMBERS OF THE THESIS COMMITTEE:

Rhea Paul, Chair

Joan McMahon

Carol Mack

Proficiency in various higher level language skills is necessary to integrate and organize units of meaning beyond the sentence level. Examining narratives has become a useful tool for assessing these language abilities. Narrative skills are considered by many researchers to be a strong link between oral language and literacy, and related to academic performance (Westby, 1991; Roth & Spekman, 1991).

The present study was part of the Portland Language Development Project, a longitudinal study of early language delay. The purpose of this study was to assess higher level language abilities by examining the stories of 6-year-olds with normal, impaired, and late developing oral language. The specific objective was to determine whether there were differences on 9 measures of narrative skill in first graders that could be related to their pattern of language acquisition.

The original group size was 24 children with normal expressive vocabulary size at age 20-34 months, and 30 children whose expressive vocabulary size fell below the normal range at 20-34 months referred to as "late talkers." These two groups of children were re-evaluated when in first grade. Each child was audiotaped producing a narrative and a spontaneous language sample. The Bus Story (Renfrew, 1977), a story retelling procedure, was administered for the narrative measure.

When the spontaneous, conversational language samples were scored for syntactic complexity with Lee's (1974) Developmental Sentence Score (DSS), 22 (73%) of the original LT had scores in the normal range and were reclassified as "History of Expressive Language Delay" (Hx). The remaining 8 (27%) who continued to fall below the normal range were now classified as "Expressive Language Delayed" (ELD).

The narrations produced by all of the children were scored on nine measures: narration length in T-units, mean length per T-unit in morphemes,

type-token ratio, average number of morphemes in the five longest sentences, information retold, lexical richness, cohesion, percentage of new propositions produced, and narrative stage assignment.

No significant differences were found among the three diagnostic groups on the following seven measures: narration length in T-units, mean length per T-unit in morphemes, type-token ratio, information retold, lexical richness, cohesion, or percentage of new propositions produced.

Significant differences were found among groups on the average number of morphemes in the five longest sentences. Both the normal group and the Hx group scored significantly higher than the ELD group. Significant differences were found between the normal group and both the Hx group and the ELD group on the measure of narrative stage assignment.

The present study suggested that children with early language delay appear to "catch up" with normal peers in most areas of narrative ability by age 6. Of the variables examined in this study, the production of an overall mature narrative was the primary deficit noted in children with a history of expressive language delay. Language intervention should focus not only on morphology and syntax, but also on basic story grammar knowledge. Children with an expressive language delay as well as children with a history of language delay may need additional teaching and training of narrative skills in order to succeed with literacy.

A STUDY OF THE
NARRATIVE SKILLS IN 6-YEAR-OLDS WITH
NORMAL, IMPAIRED, AND LATE DEVELOPING LANGUAGE

by
KAREN ELAINE JOHNSON

A thesis submitted in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE
in
SPEECH COMMUNICATION:
SPEECH AND HEARING SCIENCE

Portland State University
1993

TO THE OFFICE OF GRADUATE STUDIES:

The members of the Committee approve the thesis of Karen Elaine Johnson presented October 25, 1993.

Rhea Paul, Chair

Joan McMahon

Carol Mack

APPROVED:

Stephen Kosokoff, Chair, Department of Speech Communication

Roy W. Koch, Vice Provost for Graduate Studies and Research

ACKNOWLEDGEMENTS

Sincere thanks to Dr. Rhea Paul for her support throughout this project. I am very grateful to have had the opportunity to work as a research assistant for such a remarkable woman.

I wish to thank Joan McMahon, my academic advisor, for her advice throughout the past two years of graduate school. I would also like to thank Carol Mack for serving on my thesis committee and providing insightful comments.

Heartfelt thanks to Mary Shiffer, my student teaching supervisor, who helped and encouraged me during my final term.

My husband Steve deserves a huge thank-you for his love, support, and computer expertise. This work is dedicated to my wonderful children, Erik and Rebecca, who helped and inspired me in so many ways throughout the past three years.

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vii
CHAPTER	
I INTRODUCTION	1
Statement of Purpose	2
Definition of Terms	3
II REVIEW OF THE LITERATURE	6
Narratives	6
Structural Properties of Narratives	
Stages of Narrative Development	
Narrative Analysis	
Relationship Between Narratives and	
Academic Success	
Story Retelling	12
Literature Regarding <u>The Bus Story</u>	
Comprehension and Memory in Story Retelling	
Previous Study of Subjects in this Study	
Summary	16
III METHODS AND PROCEDURES	17
Subjects	17
Recruitment	

Group Assignment at Age 2 (Intake)
Group Assignment at First Grade Age

	Procedures	22
	Instrumentation	23
	Audiotaping	
	Developmental Sentence Scoring	
	<u>The Bus Story</u>	
	<u>Systematic Analysis of Language Transcript</u>	
	T-unit Segmentation	
	Data Analysis	25
	Narration Length in T-units	
	MLU per T-unit	
	Type—Token Ratio (TTR)	
	Information Score	
	Scoring for Sentence Length	
	Cohesion Adequacy	
	Proposition Score	
	Lexical Richness	
	Narrative Stage Assignment	
	Research Design	
	Reliability	
	Statistical Analysis	
IV	RESULTS AND DISCUSSION	36
	Results	36
	Average Sentence Length Score:	
	Average of the Five Longest Sentences	
	Narrative Stage Assignment	
	Discussion	40
V	SUMMARY AND IMPLICATIONS	44
	Summary	44

Implications	46
------------------------	----

Research
Clinical

REFERENCES	51
----------------------	----

APPENDICES

A	HUMAN SUBJECTS RESEARCH FORM	55
B	QUESTIONNAIRE FOR PARENTS OF CHILDREN 15—30 MONTHS OLD	57
C	<u>OREGONIAN</u> ARTICLE	59
D	LANGUAGE DEVELOPMENT SURVEY	61
E	<u>THE BUS STORY</u> TEXT	63
F	DEVELOPMENTAL SENTENCE SCORE: SCORING CRITERIA	65
G	DEVELOPMENTAL SENTENCE SCORE: NORMS	68
H	<u>THE BUS STORY</u> : INFORMATION SCORING CRITERIA	70
I	COHESION SCORING PROCEDURE	72
J	500 MOST COMMON WORDS USED BY 6 YEAR OLDS	78
K	NARRATIVE ANALYSIS CRITERIA	83

LIST OF TABLES

TABLE		PAGE
I	Group Demographic Information	
	at Intake and Followup	19
II	Group Description at First Grade	21
III	Mean, Standard Deviation, and Range of Each	
	Group for Each of the Dependent Measures	37
IV	ANOVA, Tukey Test, and Kruskal—Wallis	
	Test Results	38
V	Mann—Whitney U-Test Results	40

CHAPTER I

INTRODUCTION

Text is a general term used to describe any oral or written unit of language beyond the sentence level that forms a meaningful and unified whole (Halliday & Hasan, 1976). A narrative is a type of text discourse with events linked to one another temporally or causally in predictable ways (Scott, 1988a).

Research has shown that the development of higher level language skills needed for the production and comprehension of narrative units is important for reading comprehension and performance in school (Westby, 1991; Roth & Spekman, 1991). Thus, children with problems comprehending or producing narratives may be at risk for language and/or learning problems in the school setting. Feagans and Applebaum (1986) have presented longitudinal data which indicate that proficiency in oral narration is the most effective single linguistic predictor of reading comprehension achievement in elementary school-age students. Narrative skill and reading ability rely on higher-order oral language abilities (Roth & Spekman, 1991); therefore, children with language disorders may be at risk for reading and later learning problems. Donahue (1986) suggests that not only will those preschool children identified early with oral language

disorders have problems, but those children with less obvious language problems that are not identified until school age, may have reading problems as well.

The relationship between early expressive language delay and continued linguistic and academic problems has been a focus of current research. Narrative sample analysis is one way to assess this relationship.

STATEMENT OF PURPOSE

The purpose of this study is to examine the narratives produced by first grade children with different language histories. The three groups identified are first grade children with normal, impaired, and late developing oral language. The specific objective of this study is to determine whether there are differences on 9 measures of narrative skill in first graders that can be related to their pattern of language acquisition. Due to their delays in the acquisition of oral skills, the latter two groups would be expected not to perform as well as their peers with normal language development on a narrative task which relies on higher-order oral language abilities.

The hypothesis for this study is that on a story retelling task, narrative skills of first graders who are currently delayed and those with a history of language delay will be significantly different from their normally developing peers. The null hypothesis is that looking at three groups of first graders, i.e. the normal language development group, the expressive language delay

group and the history of language delay group, there will be no differences among the groups' narrative skills.

DEFINITION OF TERMS

For the purpose of this study, the following definitions will be used:

1. Cohesion: Use of grammatical structures which contribute to the flow of a text when referring to redundant information (Halliday & Hasan, 1976).
2. Cohesive marker: A linguistic element that ties one referent to another in a text. An element may be judged a cohesive element if it is used as a linguistic marker that leads the listener to expect that its interpretation is outside the sentence (e.g., definite articles). Cohesive markers may be reference, conjunction, or lexical (Liles, 1985).
3. History of language delay: Those children who were classified as late talkers at 20-34 months and at first grade age scored 6.35 or above (10th percentile for age 5.0) on a language sample using the DSS (Lee, 1974).
4. Information score: Total points earned on The Bus Story retelling task using Renfrew's (1977) criteria. With a total of 54 points possible, two points are earned for each main item retold, one point for each subordinate item.

5. Late talker: Children who produce less than 50 words (by parent report) at 20-34 months of age.
6. Morpheme: The smallest unit of meaning; it is indivisible without violating the meaning or producing meaningless units.
7. Mean length of T-unit (MLT): Average number of morphemes per T-unit.
8. Narrative: Extended units of text with events linked to one another temporally or causally in predictable ways. Narratives are about people, animals, or imaginary characters engaged in events over time (Scott, 1988a).
9. Normal language history: Children who produce more than 50 words (by parent report) by 20-34 months of age.
10. Proposition: A basic unit of meaning which expresses a complete idea. Graybeal (1981) defines a proposition as "a verbal element plus its arguments, where a verbal element could be a verb, adjective, preposition, or adverb" (p. 274). A proposition roughly corresponds to a simple sentence (Stein & Glenn, 1979).
11. T-unit: A term proposed by Hunt (1965) as a means of segmenting written or spoken discourse. It is one main clause plus any subordinate clause or non-clausal structure that is attached or embedded in it.

12. Text: A term used to refer to a passage, spoken or written, that forms a meaningful and unified whole. More specifically, it is a semantic, not a grammatical unit; it is encoded in sentences, but not structurally related to them; it is related to context of situation by a consistency of register; it is reasonably homogenous and thus consistent across all texts; it is characterized by certain linguistic features which are the basis of cohesion in the text and thereby give it texture; it is not defined by size (Halliday & Hasan, 1976).
13. Type-Token Ratio (TTR): A measure that is useful in quantifying general semantic aspects of a language sample. It is the result of dividing the total number of words (tokens) into the total number of different words (types) (Miller, 1981).

CHAPTER II

REVIEW OF THE LITERATURE

NARRATIVES

Text analysis that describes the organization of meaning across utterances is one type of functional analysis of language. Text is a general term used to describe any spoken or written unit of language beyond the sentence level that forms a meaningful and unified whole (Halliday & Hasan, 1976). One type of text that can be analyzed in this way is the narrative, which is distinguished from other types of texts by having a sequence of events with a focus on people, animals, or objects that have taken on human characteristics (Scott, 1988a).

Narratives differ from conversation because they involve the expression of extended or elaborated units of text, include introductory and closing statements (story markers), and an orderly presentation of events that leads to a logical resolution (Roth & Spekman, 1986). It requires a monologue from the speaker, and the listener has a passive role. The speaker must produce language that is relevant to the overall narrative while remaining aware of the information needed by the listener. Narratives are

essentially decontextualized monologues; that is, they are told out of the context of the event's occurrence.

Structural Properties of Narratives

Kintsch (1977) describes narratives as having fairly rigid culture-specific structures. In the simplest type of narrative, there is only one protagonist, and the events follow each other and are causally related. He refers to story structure as the macro-structure of a narrative, which is composed of unique rules and guiding principles which, like those at the sentence or word level, must be learned. Stein & Glenn (1979) found that the cognitive structures or schemas used during story processing can be quite independent of the structures used during single sentence processing. They describe story grammars as consisting of two main unit types: 1) a setting and 2) one or more episodes. Episodes consist of an initiating event, an internal response, a plan, an attempt, a consequence and a reaction, in this order.

The setting is when the main characters, the time, and place are introduced. The initiating event is where the plot of the story really begins. There is an event or action that causes the character/s to do something. This is followed by two elements that can be considered optional; the internal response or feelings of the main character, and the stated plan of action which refers to the feelings or thoughts of the main characters. Then comes an important part of the story referred to as the attempt; what the

main character/s does/do because of the initiating event. The consequences of that action follow, and then sometimes there is a reaction, or resolution, to the story. The initiating event, the attempt and the consequence are the vital parts because they make up the plot.

Stages of Narrative Development

With age, children's stories grow longer and more complex. Greater complexity; more attention to motivations, thoughts, and details; and fulfillment of listener needs to know time and place sequences are characteristic of the narratives of older children. Cognitive development and social awareness are responsible for this developmental pattern in children's narratives (Bernstein & Tiegerman, 1989). Knowledge about how stories are structured develops in the preschool years, and is refined and developed during the elementary school years. Applebee (1978) has proposed stages of story development. He researched normally developing children aged 2 to 5, and discovered six basic types of story structure.

1. Heap stories consist of labeling or describing activities. They are usually simple declarative sentences that have no relation to each other; they consist of whatever happens to occupy the child's attention at that moment. This format is used before the age of 2.
2. Sequences is the most frequently occurring narrative structure among 2-year-olds. There is a simple structure that involves a

main character or setting, but there is no plot. One event does not follow temporally or causally from the preceding event, at least not intentionally.

3. Primitive narratives have a central character, object, or event.

The form is a description of characteristics or events that revolve around this central core. This scheme represents the child's first use of inference in stories.

4. Unfocused chain is a structure that has no central theme or character, but events are chained together, with one incident leading to the next.

5. Focused chain has a central theme or character and the events have a temporal and logical relationship. It does not tell the motivation behind the character's actions and the ending does not have to follow logically from the beginning. This is most common in 4- and 5-year-olds.

6. True narrative emerges between 5 and 6 years of age, and includes a central theme, character and plot. It differs from the focused chain by including the character's motivations.

Applebee found that narrative development is a gradual progressive process, but a stage can be assigned depending on the primary manner of organizational structure used.

Klecan-Aker, McIngvale and Swank (1987) adapted the work of Applebee (1978) and Stein and Glenn (1979) and devised a hierarchy of developmental levels based on the number and type of story grammar components found within the story. This adaptation has been found to be reliable and appropriate for older children (Klecan-Aker & Kelty, 1990).

Narrative Analysis

The narrative is viewed as a fertile database for the study of child language because children must have a variety of cognitive and linguistic skills to be able to tell or write narratives (Klecan-Aker & Kelty, 1990).

Narrative samples permit the examination of extended units of connected language (Roth & Spekman, 1991).

Some studies have failed to find significant differences between the narratives of language-impaired and normal children (Klecan-Aker, 1985; Roth & Spekman, 1989). In general, though, the narratives of language-impaired and language learning disabled children are shorter and less mature and have less mature episode and sentence structure than those of age-matched nonimpaired peers (Merrit & Liles, 1987; Roth & Spekman, 1986). Normal and language-disordered children show similar patterns of cohesion, such as the use of conjunctions and unambiguous reference, and both groups are influenced by the listener's role. However, language-impaired children are less efficient in their use of cohesion as compared to normal children due to their poorer narrative organization (Liles, 1985). Language-

disabled children use fewer conjunctions and exhibit more ambiguous reference, often failing to consider the needs of their audience (Liles, 1987). Paul & Smith (1993) found that language-delayed children have difficulties not only in formulating grammatical sentences, but in "encoding, organizing, and linking propositions, and in retrieving precise and diverse words from their lexicon" (p. 10).

Relationship Between Narratives and Academic Success

"Discourse is the primary linguistic medium through which academic information is imparted and acquired" (Roth & Spekman, 1991, p. 176). Throughout the school years narratives are prominent in early reading and writing curricula and in oral language experiences like Show & Tell (Scott, 1988a). The language used in classrooms is different from that used at home. Language at home depends heavily on context, and children can act appropriately by following familiar routines; understanding everything that is presented to them linguistically is not a necessity (Bernstein & Tiegerman, 1989). In school, the language used has few contextual cues for children to rely on. Westby (1985) claims that narratives may bridge a gap between the varieties of home and school language.

Bishop and Edmundson (1987) studied 4-year-olds with language impairments to determine what factors best predict normal outcome, and found that "one can predict with a high degree of accuracy the likelihood of good outcome for individual children" (p. 169). Using a story retelling

procedure, they found that good prognosis for normal speech and language was closely related to good expressive semantic skills at age 4.

Paul & Smith (1993) found that language-delayed children have problems in formulation, organization and retrieval when producing narratives on a story-retelling task. These are typical characteristics shown by school-age children that are learning-disabled. They conclude that "children with a history of slow language development that persists to the late preschool period would appear to be at a significant risk for academic difficulty" (p. 10).

STORY RETELLING

Independent, self-generated narrative production requires the child to use his or her own organizational structure and narrative formulation (Owens, 1991). Research indicates that story retelling is more clinically useful in assessing language than story generation (Merritt & Liles, 1989; Ripich & Griffith, 1988). With story retelling, the narratives are longer, contain more story grammar components, and more complete episodes for both normal and language disordered children. Therefore, a story retelling task provides a more complete assessment of an impaired child's language use, including grammatical usage, syntax, and story cohesion. The ability to retell simple stories improves with age, as does the ability to recall more details in the story (Ripich & Griffith, 1988; Liles, 1985). Stein and Glenn

(1979) found in their study of spontaneously generated stories that internal responses of the characters increase with age and that older children state more information about the intentions and motives of the characters.

Literature Regarding The Bus Story

The Bus Story, developed by Renfrew (1977), is a story-retelling instrument that was standardized in England on children from 3 to 8 years of age. It was shown to be a reliable measure of children's language development in a study by Bishop & Edmundson (1987). Their study investigated the question of how to determine accurate prognoses for language-impaired preschoolers to develop normal language. The authors found that language development outcome could be predicted with 90% accuracy based on the battery test scores obtained at age 4. The Bus Story was found to be the most accurate prognostic tool, correctly predicting the outcome for 83% of the children. Most standardized assessment instruments assess language at the word or sentence level. Many researchers have found that a story retelling task does reflect a child's ability to integrate various language processes necessary for higher order language learning and literacy.

Comprehension and Memory in Story Retelling

In narrative retelling, the child listens to a story and then reconstructs the story. Such a task requires the child to attend to and

remember all aspects of a previously presented story, integrate them, and then put the story into their own words. Some studies have shown that the amount and type of information repeated by a child is not representative of what that child actually comprehends of the story (Peterson & McCabe, 1983; Merritt & Liles, 1989; Merritt & Liles, 1987). Stein and Glenn (1979) found similar results, although they used spontaneously generated narratives in their study.

Liles (1985) determined that the relationship between comprehension of story grammar knowledge and cohesion are independent factors. Some language-disordered subjects she examined had good comprehension but used a high percentage of incomplete cohesive ties. She further states that although poor story grammar knowledge may be indicative of poor cohesion, simply comprehending story grammar is not sufficient for producing a coherent story.

Memory for content, or gist recall, in groups of normal and language-impaired children on a story retelling task was studied by Graybeal (1981). She found that the amount of information recalled increases with age, and not all parts of the story are remembered as well. Studies have shown that elementary children focus on settings, beginnings, and outcomes, but exhibit poor recall of internal reactions and goals. They also add information that was not present in the original story (Mandler & Johnson, 1977; Stein & Glenn, 1979).

The role of comprehension and memory in a retelling task cannot be claimed as a critical factor in distinguishing the story production of language-impaired children from that of normal children. Elements beyond memory and comprehension play a vital role in the retelling process.

Previous Study of Subjects in this Study

This study will replicate a study by Bauersmith (1991). She followed many of the same subjects to age 4 to examine narrative skills of 4-year-olds with three different patterns of language acquisition. Her data showed that 57% of children with slow expressive language development at age two showed chronic deficits in expressive syntax and morphology two years later as indexed by mean length of utterance (MLU) and Developmental Sentence Score (DSS). Significant differences were found between the normal group and the chronic delay group on every measure of the narration task except for length of narration in T-units. No significant differences were found between the history of delay group and the normal group on any measures. However, there were also no significant differences between the history of delay group and the chronic delay group on three measures: number of informational units expressed, adequacy of cohesive ties, and lexical diversity. This suggests that the history of delay group falls midway between the other two on these measures, and are not significantly better than the expressive language delay group. Bauersmith (1991) speculated that perhaps the history of delay group is still in the process of "catching

up" and will eventually surpass the chronic delay group on all measures as they become more like their normally developing peers. She theorizes that another possibility is that the history of delay group retain some more subtle difficulties, not in basic syntax and morphology, but in the higher-order language processes necessary for narrative success. These difficulties may not cause problems until the child enters school and more demands are placed on them as they progress through school. The present study will investigate these speculations.

SUMMARY

Research indicates that in general, language impaired children produce narratives that are shorter, contain less information, and use a more restricted vocabulary. Differences in narrative ability that can be related to early language characteristics may be useful in making diagnostic and prognostic decisions for young children with slow expressive language development.

CHAPTER III

METHODS AND PROCEDURES

SUBJECTS

A total of 54 children participated in this study. These subjects were recruited at approximately age 2 to participate in the Portland Language Development Project, a longitudinal study of the characteristics of children with slow expressive language development. Approval was received from the Human Subjects Research Review Committee (Appendix A).

Recruitment

Three methods were used for recruitment:

1. Private physician offices in the Portland metropolitan area distributed questionnaires over a 5-month period to parents with children ranging from 16 to 24 months of age. The questionnaire requested information about the child's expressive vocabulary size and willingness to participate in a language development study (see Appendix B).
2. A newspaper article in The Oregonian requested the parents of speech-delayed toddlers to contact Portland State University if they wanted to participate in the study (see Appendix C).

3. A local radio station broadcast a request for speech-delayed toddlers to participate in a research project.

Parents responding to the radio broadcast and the newspaper article also completed the questionnaire.

Group Assignment at Age 2 (Intake)

The children were divided into two groups, the normal group (parents reported expressive vocabularies of more than 50 words at 20-34 months), and the late talkers group (parents reported expressive vocabularies of less than 50 words). All children involved in the study came from similar middle class families as indicated by their socioeconomic status (SES).

An initial assessment was done at Portland State University, with the parents completing The Language Development Survey (LDS) (Rescorla, 1989), a vocabulary checklist (see Appendix D). Initial group assignments were confirmed with the information obtained on the LDS. The subjects included in the study had no physical or mental disabilities that would interfere with normal language development, obtained a score of 85 or better on the Bayley Scale of Infant Development, and passed a hearing screening, using visually reinforced audiometry, at 25 dB. Children were seen yearly for follow-up assessments of language and related skills.

Table I displays the demographic information of the diagnostic groups at intake, including mean ages, socio-economic status (SES), and number of

TABLE I
GROUP DEMOGRAPHIC INFORMATION
AT INTAKE AND FOLLOW-UP

Group	<u>n</u>	Intake Age*				SESt		# Words				Pct. Male	Follow-up Age*			
		Mean	<u>SD</u>	Min	Max	Mean	<u>SD</u>	Mean	<u>SD</u>	Min	Max		Mean	<u>SD</u>	Min	Max
Normal	24	25.7	4.6	16	34	2.6	1.4	205	73.4	43	303	67%	84.8	2.7	81	91
LT	30	24.8	4.0	19	33	2.6	1.0	27.2	25.1	2	88	73%	83.1	2.9	76	91

* in months

† on a four factor scale based on Myers & Bean (1968), where 1 is the highest and 5 is the lowest SES rating

words spoken. The normal group was 67% male and 33% female, and the late talkers group was 73% male and 27% female.

Group Assignment at First Grade Age

When the children were evaluated for the present study, during their first grade year (aged 76-91 months), the following tests were administered by research assistants involved in the Portland Language Development Project: Vineland Adaptive Behavior Scales (Sparrow, Balla & Cicchetti, 1984), Draw-a-Man (Harris & Goodenough, 1963), Test of Language Development-Primary (TOLD-P) (Newcomer & Hammill, 1988), Peabody Individual Achievement Test (PIAT) (Dunn & Markwardt, 1970), and a hearing screening at 20 dB (ASHA, 1985). A spontaneous speech sample was audio recorded, transcribed, and scored for Developmental Sentence Score (DSS) (Lee, 1974).

Three groups were created on the basis of DSS scores at the first grade assessment and intake group placements. (Table II). These three groups were defined as follows:

1. The subjects were considered to be normal if they used more than 50 different words at age 20-34 months as reported by the parents on the LDS and also scored 6.35 or above (10th percentile for age 5.0) on the DSS (Lee, 1974) at first grade, calculated from the free speech sample.

TABLE II
GROUP DESCRIPTION AT FIRST GRADE

Group	<u>n</u>	Age *		% Male	DSS			
		Mean	<u>SD</u>		Mean	<u>SD</u>	Min	Max
Normal	24	84.8	2.7	67	8.04	1.3	6.38	10.86
Hx	22	82.8	3.0	73	7.65	1.0	6.42	10.26
ELD	8	84.1	2.6	75	4.85	2.1	0.00	6.34

* in months

2. The subjects were considered to have a history of expressive language delay (Hx) if they were identified as late talkers at age 20-34 months because they produced fewer than 50 words, but at first grade age scored 6.35 or above (10th percentile for age 5.0) on the DSS (Lee, 1974) calculated from the free speech sample.
3. The subjects were considered to be expressive language delayed (ELD) if they were identified as late talkers at age 20-34 months because they produced fewer than 50 words, and also scored below 6.35 (10th percentile for age 5.0) on the DSS (Lee, 1974) at first grade, calculated from the free speech sample.

PROCEDURES

During the first grade assessment, a spontaneous speech sample was recorded on audiotape while the child and parent played with a set of colorforms that included a farm scene with various animals, trees, and other objects. The sample was then transcribed into the Systematic Analysis of Language Transcripts (SALT) computer program. The DSS procedure was applied to 50 noun-verb utterances of the language sample. Hand scoring was done by graduate students trained in DSS procedures.

For the narrative task, The Bus Story (Renfrew, 1977) was read to the child. The examiner told the child: "I'm going to tell you a story about this

bus. When I'm finished, you can tell me the story." The examiner pointed to each picture as she read the prewritten text of The Bus Story without repetitions. The Bus Story script is given in Appendix E. Then the examiner asked the child to retell the story from the pictures, while audiotaping the narrative. This sample was then transcribed into the SALT program and later analyzed for the variables of interest in this study.

INSTRUMENTATION

Audiotaping

The subjects' narrations of The Bus Story (Renfrew, 1977) and spontaneous language sample obtained at first grade age were audiotaped using a Sony Dictator/Transcriber BM-88, a Sony ECM-144 Electret condenser lavalier microphone, and Sony DC-30 cassette tapes.

Developmental Sentence Scoring

The DSS (Lee, 1974) assesses children's syntactic and morphologic development. Utterances from spontaneous language samples containing a subject predicate relationship are scored for constituents of eight grammatical categories according to Lee's (1974) criteria (see Appendix F). Lee has established norms for the DSS results (see Appendix G).

The Bus Story

A story retelling instrument, The Bus Story (Renfrew, 1977), measures expressive narration skills. An information score was obtained by following the criteria developed by Renfrew (1977), which assigns points for essential and secondary information retold (see Appendix H). With a total of 54 points possible, two points were given for each idea forming an essential part of the story, one point for each subsidiary item mentioned.

Systematic Analysis of Language Transcript

The free speech samples and the narrative samples were transcribed orthographically (with bound morphemes indicated) directly from the audiotapes into an IBM-compatible personal computer equipped with the Systematic Analysis of Language Transcript (SALT) program (Miller & Chapman, 1985).

T-unit Segmentation

The investigator segmented the utterances first according to intonation contours, and then reexamined the utterances further segmenting them into T-units. New T-units that were a continuation of an utterance were coded [T] before the first word of the new T-unit. This segmentation allowed computation of utterance length without undue influence from run-on sentences.

DATA ANALYSIS

The free speech samples and narrative samples were transcribed by this investigator into the SALT program. The investigator listened to each narration, segmented the utterances first according to intonation contours, and then reexamined the utterances further segmenting them into T-units. New T-units that were a continuation of an utterance were coded [T] before the first word of the new T-unit. All comments, nonfluencies and direct repetitions of the examiner were retained and bracketed. The bracketed portions in the transcript were not included in the final analysis. The use of T-units allowed an accurate computation of utterance length by separating run-on sentences into structurally complete sentences. A T-unit is a main clause with all subordinate structures attached to or embedded within. Main clauses that begin with "and," "but," or "or" indicate a new T-unit unless there is co-referential subject deletion in the second clause (Scott, 1988b). Nine variables were analyzed in this study.

Narration Length in T-units

This investigator counted the number of T-units used in the story retelling task. This provides a measure of the quantity of utterance units produced and an aspect of narrative development which increases with age.

MLU per T-unit

The mean length of utterance in morphemes is a general indicator of structural development of the productive language of children (Miller, 1981). To calculate the MLT, the children's utterances were divided into T-units and entered into the SALT program. The SALT program automatically calculated the MLT in morphemes for each narrative sample.

Type-Token Ratio (TTR)

The SALT program automatically provides a type-token ratio (TTR) to quantify general semantic aspects of the narration. It is the result of dividing the total number of words used (tokens) into the total number of different words (types) (Miller, 1981).

Information Score

The Bus Story narrations were scored for information according to Renfrew's (1977) criteria. The investigator read the transcription line by line and compared its content to Renfrew's scoring criteria. Points earned were noted in the margin next to the information scored. Essential items retold received two points, and subsidiary items received one point. The total number of points became the information score for each subject.

Scoring for Sentence Length

The Bus Story narrations were scored for sentence length according to Renfrew's (1977) criteria. According to these rules, the words AND,

THEN, and WELL were deleted when they appeared at the beginning of sentences. Then the five longest sentences in morphemes were selected, the morphemes were added together and divided by five to obtain an average of the five longest sentences.

Cohesion Adequacy

Each subject's narration was coded for use of cohesion using Liles' (1985) criteria for identifying cohesive markers and judging cohesive adequacy (see Appendix I). The investigator read the whole transcript, then reread it line by line. Any word whose meaning was dependent on information outside that T-unit was circled, as in: "There once was a very naughty bus. He decided to run away." If the information needed was available within that T-unit, the word was not judged as a cohesive marker, as in "It was a naughty bus." For consistency in scoring, "the road" was not scored as a selective demonstrative reference if a or some can be substituted without producing a crucial change in the meaning of the text. If two or more conjunctions were conjoined in a T-unit, only the more complex conjunction was counted in the final scoring, using Liles' hierarchy of complexity. In this system causal conjunctions are considered most complex, followed by adversative, temporal, and additive. Initial ands were not counted as conjunctions.

After the cohesive elements in a narrative were circled, they were transferred to a scoring sheet for that subject. Next to the cohesive

element, the investigator noted the line number in the transcript in which it occurred as well as its referent. A judgment of the cohesive element as complete or noncomplete was made at this time. Complete ties were those with unambiguous and easily found referents. Noncomplete ties were those which required information outside the T-unit, but the information was not there or the listener is guided to ambiguous information. After doing the worksheet, the investigator counted up all the complete and noncomplete ties. The cohesive adequacy score is the percentage of complete ties used in the narrative, which is obtained by dividing the number of complete ties by the total number of complete ties plus noncomplete ties.

Proposition Score

A proposition is the equivalent of a simple sentence or idea unit (Kintsch, 1977). The total number of propositions (idea units) were counted, and the number of original or unrepeated ideas were counted. This second number was divided by the total number to determine the percentage of new propositions contained in the narration. This measure gave an indication of the extent to which the narrations were efficient and did not contain repetitive elements (Bauersmith, 1991).

Lexical Richness

A computer program developed by Ann Nockerts (1991) to be used in conjunction with the SALT program calculated the total number of unusual

word types used by each child in his/her narrative. Unusual types are those that are not found on Wepman and Hass' list of the 500 most common words used by 6-year-olds (see Appendix J). This measure looks at lexical diversity differently from TTR.

Narrative Stage Assignment

Narratives were assigned a stage based on an adaptation of the work of Applebee (1978) and Stein and Glenn (1979), developed by Klecan-Aker, McIngvale and Swank (1987) (Appendix K). The narrative stages were modified due to problems in reliably distinguishing focused from unfocused chains. These two stages were combined into one stage for this study and referred to as a "chain". This study identified five narrative stages: heap, sequence, primitive narrative, chain, and true narrative. Details for determining narrative stage assignment were developed by McFarland (1992), and a description of each stage and sample narrative follows (Klecan-Aker & Kelty, 1990, McFarland, 1992).

Assignment to a narrative stage involved the examiner reading the entire narrative and making a global judgment as to whether the narrative was a heap, sequence, primitive narrative, chain, or true narrative. A story consisting of simple declarative sentences involving labeling or description of activities without organization would have been identified as a heap story. There were no heap stories gathered in this study.

A story consisting only of a description of a character's activities was identified as a sequence. A sequence does not contain a plot and one event does not follow temporally or causally from the preceding event. Following is an example of a sequence story gathered in this study:

One day there was a bus names Jeff.
 And driver said stopstop.
 I'll get you for this.
 And then the bus and the train said Hey buddy, what're you doing?
 I'm just going to beat you up.
 He's pretty mean.
 Hey, stop bus, stop!
 Nanananana, you can't catch me!
 I hate going on streets.
 I gotta go here and jump over the grass.
 Moo, I can't believe my eyes.
 It's a bus.
 Oh no, this can't be.
 Uhoh.
 Hey you, I'll give you XX.
 Oh yeah.
 And the end.

A story was identified as a primitive narrative if the child made some cause-effect or temporal relationships among events, yet lacked an overall logical action plot. Characters, objects, and events have a similar function. Following is an example of a primitive narrative gathered in this study:

The bus was driving.
 And the driver...
 The driver got out of the bus and run after the bus.
 The other train and the bus were racing.
 The bus was on a road.
 The policeman blowed his whistle.
 The bus was on the road driving.
 The bus jumped over the fence.
 The bus was driving.

The cow said Moo.
 The bus was going down the hill.
 The bus fell into the pond.
 The bus driver found where he was.
 He got a telephone and to pull the bus out.
 And so he could drive again.
 The end.

A chain is a story containing some character motivation, some cause-effect and temporal linking, and a sense of plot through logical sequencing of action. A chain story lacks a clear problem and resolution in the plot structure. Following is an example of a chain narrative gathered in this study:

He started going on the road.
 And then the bus decided he would go.
 Then he raced away.
 The man was running after him.
 And then the bus made funny faces at the train.
 And then they raced each other over to the policeman.
 And then he was tired of being on the road so he decided he would jump over the fence.
 And then he met a cow that said "Moo".
 And then he tried to put on his brakes.
 But he didn't know how.
 And then he went right in the water and stuck in the mud.
 And then the driver found them in the mud so he called up a crane to pull it back up.
 And now he gets it.

A story containing elaborate character development and including all the basic story grammar parts, especially describing the resolution and shifts in character's psychological states, was identified as a true narrative. Following is an example of a true narrative gathered in this study:

Once upon a time there was a bad bus.
 And the driver was fixing him up when he started to run away.

He cried "stopstop".
 He went beside a train.
 They did funny faces at each other.
 Then he went up on a bridge.
 Then he went into a city.
 And a policeman was there.
 The policeman blew his whistle and said "Stop, stop you bus".
 But he went on and on.
 Then he decided he didn't wanna be on the road anymore.
 So he jumped over a fence and went on the grass.
 He met a cow that said "Moo".
 And he went to see what was on the bottom of the hill.
 But when he saw that there was water there, he tried to put on
 his brakes.
 But he fell in the river with a big giant splash.
 And then his driver came.
 And he called for an anchor to get him out of the river and onto
 the road.
 And from there on the naughty bus didn't go off the road
 anymore.

Each narrative was assigned a number from 1 to 5 to indicate stage assignment, 1 being a heap and 5 being a true narrative.

Research Design

The design was a complex group design. There was one independent variable, language diagnosis, with three levels: normally achieving, history of language delay, and chronic language delay. There will be nine dependent variables derived from analyses of The Bus Story (Renfrew, 1977): information score, average length of five longest sentences in morphemes, narrative stage assignment, percentage of correct cohesion used, mean length per T-unit in morphemes, number of T-units used in the story,

percentage of new propositions produced, number of unusual words produced, and type-token ratio.

Reliability

For language sample transcription reliability, 10% of the spontaneous language samples were randomly selected and another trained graduate student transcribed the middle 100 words from the audiotape. A point-to-point agreement score of 95% was obtained by dividing the number of words in agreement by 100 (McReynolds & Kearns, 1983).

For group assignments based on DSS scores, approximately 10% of the spontaneous language samples were randomly selected and another trained graduate student performed DSS independently. A point to point comparison was done for sentence scoring, dividing the total number of categorical points in agreement by the total number of categorical points in agreement and disagreement, and interrater reliability was 92%.

For narrative transcription reliability, 10% of the narrations were randomly selected and another trained graduate student transcribed the entire narration from the audiotape. A point to point comparison was done on the utterances transcribed, and an agreement score of 98% was derived in the same manner as described above.

The narrative samples were scored by an additional researcher for the narrative measures of narrative stage assignments, information score, occurrence of complete cohesion, new proposition score, and average

sentence length. Scores on each measure of narrative ability were arrived at independently by two researchers, and interrater reliability was determined by percentage of agreement for each measure.

Approximately 33% of the narrative samples were scored for reliability of the narrative stage assignment, yielding an interrater reliability score of 83%. Approximately 10% of the narrative samples were scored for reliability of information scoring, dividing the total number of informational points in agreement by the total number of informational points in agreement and disagreement, yielding an interrater reliability score of 95%.

Approximately 20% of the narrative samples were scored for reliability of cohesion scoring, yielding an interrater reliability score of 96% for identification of cohesive adequacy (dividing the total number of complete and noncomplete judgments in agreement by the total number of complete and noncomplete judgments in agreement and disagreement).

Approximately 33% of the narrative samples were scored for reliability of proposition score, yielding an interrater reliability score of 94%.

Approximately 10% of the narratives were scored for reliability of average sentence length score, yielding an interrater reliability score of 100%.

The mean length of T-unit (MLT), type-token ratio (TTR) and number of unusual word types are calculated automatically by the SALT computer program, and reliability measures were not computed.

Statistical Analysis

The data was summarized by computing each group's mean, standard deviation, and range for each of the dependent variables. These descriptive statistics were used to organize the data.

The Bartlett Test for Homogeneity of group variables was done on each of the dependent measures, and the populations were found to be approximately normally distributed, with the exception of the narrative stage assignment.

A one-way analysis of variance (ANOVA) was calculated on each measure of the story retelling task to determine whether significant differences existed between the language diagnostic groups. If a significant difference was found by using an F test at the .05 significance level, then a post-hoc pair wise test was done using a Tukey Multiple Comparison Test for each ANOVA that was significant in order to determine where differences between groups exist.

Because the narrative stage assignment measure did not meet the assumptions for parametric statistics and because it is based on an ordinal scale, a nonparametric Kruskal-Wallis test was computed to test for differences among pairs of means.

CHAPTER IV

RESULTS AND DISCUSSION

RESULTS

The specific objective of this study was to determine whether there are differences in narrative ability in first grade children that can be related to language characteristics at age 2.

The research question asked was: On a story retelling task, do the narrative skills of children with a history of language delay differ significantly from their normally developing peers on the nine variables examined: story length in T-units, MLU per T-unit, TTR, sentence length, information, lexical richness, cohesion, narrative stage, and percentage of new propositions used.

The means and standard deviations of each group for each of the dependent measures were computed. These are shown in Table III.

Table IV displays the F values for those variables which met the assumptions for parametric statistics, the Tukey Test results for those variables which had a significant F value (at the .05 significance level), and the Kruskal-Wallis test statistic result for the measure of narrative stage assignment.

TABLE III
MEAN, STANDARD DEVIATION, AND RANGE OF EACH
GROUP FOR EACH OF THE DEPENDENT MEASURES

Measure	Group	Mean	<u>SD</u>	Minimum	Maximum
# T Units	N	16.2	2.5	13.0	22.0
	Hx	15.3	4.1	8.0	23.0
	ELD	14.8	3.7	9.0	20.0
MLU/T-unit	N	8.8	1.5	6.7	12.9
	Hx	9.1	1.7	6.4	11.7
	ELD	7.9	2.0	5.8	10.9
TTR	N	.55	.06	.43	.68
	Hx	.52	.06	.42	.64
	ELD	.57	.07	.47	.67
ASLS	N	13.6	3.0	9.0	22.0
	Hx	14.0	2.8	8.6	19.6
	ELD	10.4	2.9	8.0	16.2
Information	N	28.8	8.9	12.0	44.0
	Hx	26.0	9.2	8.0	44.0
	ELD	22.4	11.1	5.0	39.0
Lexical Richness Unusual Word Types	N	19.3	4.4	10.0	29.0
	Hx	19.0	5.3	9.0	28.0
	ELD	15.6	4.6	8.0	21.0
Cohesion % Complete Ties	N	74.0	23.8	25.0	100.0
	Hx	76.4	19.2	38.0	100.0
	ELD	63.1	21.9	23.0	95.0
New Prop	N	99.1	2.0	93.0	100.0
	Hx	99.3	2.7	88.0	100.0
	ELD	98.5	2.8	94.0	100.0
Narrative Stage Assignment	N	4.2	.4	4.0	5.0
	Hx	3.8	.5	3.0	5.0
	ELD	3.3	.7	2.0	4.0

TABLE IV
ANOVA, TUKEY TEST, AND KRUSKAL-WALLIS TEST RESULTS

Variable	ANOVA F	TUKEY N/Hx	N/ELD	Hx/ELD	KRUSKAL- WALLIS
# T-units	0.68	NS	NS	NS	
MLU/T-Unit	1.68	NS	NS	NS	
TTR	3.02	NS	NS	NS	
ASLS	4.75*	NS	p < .05	p < .05	
Information	1.53	NS	NS	NS	
Lexical Richness					
Unusual Word Types	1.83	NS	NS	NS	
Cohesion					
% C Ties	1.11	NS	NS	NS	
% New Propositions	0.30	NS	NS	NS	
Narrative Stage Assignment					16.167* (p < .05)

* - statistically significant

NS - statistically not significant

No significant differences were found among the groups on the following measures: story length in T-units, mean length of utterance per T-unit, type-token ratio, information score, lexical richness, cohesion, or percentage of new propositions. Significant differences were found among groups on the following measures: the average length in morphemes of the five longest sentences, and the narrative stage assignment.

Average Sentence Length Score: average of the five longest sentences

A significant difference ($p < .05$) was found among groups. A Tukey Test showed that both the normal language group and the Hx group performed better than the ELD group. This indicates that ELD children use shorter sentences on a story retelling task than both children whose language development has been normal and children who have a history of language delay.

Narrative stage assignment

The data collected did not fit the assumptions for an ANOVA test, in that it was not normally distributed and was measured on an ordinal scale; so a nonparametric test, the Kruskal-Wallis, was completed. A significant difference ($p < .05$) was found among groups. Mann-Whitney U-tests were performed and results are displayed in Table V. In terms of overall narrative maturity, the normal language group performed at a higher level than both

the Hx group and the ELD group. The Hx group did not perform significantly better than the ELD group on this measure.

TABLE V
MANN-WHITNEY U-TEST RESULTS

Groups	U-TEST STATISTIC	PROBABILITY
N/Hx	364.00 *	(p < .05)
N/ELD	163.50 *	(p < .05)
Hx/ELD	123.50	NS
N/Hx + ELD	527.50 *	(p < .05)

* - statistically significant

NS - statistically not significant

DISCUSSION

Looking at the outcome of those children who did not meet the criteria at age 20 to 34 months for normal expressive language, as defined by Rescorla's (1989) criteria, one finds that nearly three-fourths have expressive language skills within the normal range for 5-year-olds, by first grade, as measured by the DSS (Lee, 1974) scoring of their spontaneous language samples.

The data collected to answer the research question regarding the performances of three groups with differing rates of language development, shows that using a story retelling task, no significant differences were found among the three language groups in terms of total number of T-units, MLU

per T-unit, type-token ratio, information, lexical richness, cohesion, or percentage of new propositions. The subjects involved in this study were from similar backgrounds and closely matched for socioeconomic status (SES). Therefore, varying language and literacy experiences were probably not a factor in their performance. The fact that these measures did not produce any significant differences among the three groups may be attributed to the structure of the task, which was a retelling task supported by pictures. The construction of an original story is a far more complex and demanding task than retelling a story.

The only significant difference found between the normal language group and the history of language delay group was on the measure of narrative stage assignment. This would suggest that the normal language group's narratives reached a higher level of overall maturity in terms of creating a true story grammar than the Hx group. It is important to look within the narratives themselves to understand why the stories of the normal subjects were more complex in the present study. Within these stories, it is apparent that the normal subjects are using a greater number of story grammar components within each narrative. Using a greater number of these components, according to Applebee (1978), is representative of children's ability to express more complicated relationships between the theme (or plot) and the individual components influencing that plot.

Significant differences between the normal language group and the ELD group were found on two measures: narrative stage and average sentence length score, which indicates that in addition to a higher overall maturity level, the narratives of the normal group contain more complex sentence structures than those of the ELD group. The fact that the MLU per T-unit measure was not significant, whereas the average sentence length score measure was, indicates that perhaps computing an overall MLU of a language sample is less efficient than analyzing the five longest sentences in a unit of text. The complexity of the longer sentences could easily be masked by including numerous short sentences in an overall computation of MLU. The following narrative demonstrates how a child obtained a high score of 16 morphemes per t-unit when the five longest sentences were examined, but scored 9 morphemes per t-unit when the entire narrative was included.

Once upon a time there was a very naughty bus.
And while his driver was trying to mend him, he decided to...
He decided to run away.
He met a train.
They made faces at each other.
And one of them had to go on his own because the train went
into a tunnel.
The bus went into town and met a policeman.
The police whistled and said "stop".
But the bus paid no attention.
He was tired of driving on the road.
So he jumped over a fence.
He met a cow that said "moo".
Then he went down the hill.
When he saw there was water at the bottom, he tried to stop.
But he didn't know how to put on his brakes.

So he fell into the pond with a splash.
And he stuck in the mud.
When his driver saw where he was, he got a crane to lift him out
of the water and back on the road again.

Within the narratives used in the present study, it is apparent that the delayed group produced a greater proportion of simple sentences and fewer embedded clauses.

The only significant difference found between the Hx group and the ELD group was on the measure of average sentence length score, which indicates that the narratives of the Hx group contain more complex sentence structures than those of the ELD group. This concurs with current research which has shown that reading disabled subjects tend to produce a greater proportion of simple sentences and far fewer embedded clauses than their normal peers (Roth & Spekman, 1991).

CHAPTER V

SUMMARY AND IMPLICATIONS

SUMMARY

Contemporary research suggests that children's narrative language forms the bridge from oral language to literacy (Culatta, Page, & Ellis, 1983; Roth & Spekman, 1991; Westby, 1991). Narration involves extended units of text that requires a sense of purpose, the selection of relevant information, a clear and orderly presentation of this information, the ability to assume the perspective of the listener, and the ability to make necessary repairs (Roth & Spekman, 1991). Narrative ability has been found to be the best predictor for normal speech and language development for preschoolers with language impairments (Bishop & Edmundson, 1987) and reading comprehension achievement for learning-disabled, school-age children (Feagans & Applebaum, 1986).

The purpose of the present study was to determine if significant differences in narrative skills exist among three diagnostic groups. The original group size was 24 children with normal expressive vocabulary size at age 20-34 months, and 30 children whose expressive vocabulary size fell below the normal range at 20-34 months referred to as "late talkers" (LT).

These two groups of children were re-evaluated when in first grade at approximately age seven. Each child was audiotaped producing a narrative and a spontaneous language sample. The Bus Story (Renfrew, 1977), a story retelling procedure, was administered for the narrative measure.

When the spontaneous, conversational language samples were scored for syntactic complexity with Lee's (1974) Developmental Sentence Score (DSS), 22 (73%) of the original LT had scores in the normal range and were reclassified as "History of Expressive Language Delay" (Hx). The remaining 8 (27%) who continued to fall below the normal range were now classified as "Expressive Language Delayed " (ELD).

The narrations produced by all of the children were scored on nine measures: narration length in T-units, mean length per T-unit in morphemes, type-token ratio, average number of morphemes in the five longest sentences, information retold, lexical richness, cohesion, percentage of new propositions produced, and narrative stage assignment.

The data were analyzed to see if significant differences existed among the language diagnostic groups. On the measures where an ANOVA test found a significant F value (at the .05 significance level), a Tukey test was done to determine where the significant differences among the groups existed.

No significant differences were found among the three diagnostic groups on the following seven measures: narration length in T-units, mean

length per T-unit in morphemes, type-token ratio, information retold, lexical richness, cohesion, or percentage of new propositions produced.

Significant differences were found among groups on the average number of morphemes in the five longest sentences. Both the normal group and the Hx group scored significantly higher than the ELD group. Significant differences were found between the normal group and both the Hx group and the ELD group on the measure of narrative stage assignment.

IMPLICATIONS

Research

These data suggest that nearly three-fourths of those children whose expressive language did not meet normal language criteria at age 20-34 months, now at first grade age, have expressive language skills within the normal range for 5-year-olds as measured by the DSS. Paul and Smith's (1991) research data, which used the same diagnostic criteria and examined the same variables, found that at 4 years old, more than half the LT continued to have impaired language skills. It appears that at first grade age (mean = 84 months), more of the LT are catching up in terms of expressive production.

Future research of interest would be to retest this same group of children in later childhood and beyond. If these children were re-evaluated after they had completed second grade, their normally developing peers

would be more likely to have experienced the "second spurt" in language development referred to by Scarborough and Dobrich (1990). Of particular interest would be whether narrative skills at first grade age could be highly correlated with later reading skills at the fourth or fifth grade level when the demands of the school curriculum place heavier demands on their processing and encoding skills, and serve as a predictor of reading achievement.

Future research to identify more subtle language differences by targeting more specific higher level language skills is indicated. Variables to examine include: category of unusual words used (by noun, verb, adverb, adjective), category of reference used (pronoun, conjunction, lexical), category of conjunctive reference used (additive, adversative, temporal, causative), number of inferences drawn (correct or false), and use and type of complex sentences.

It is important that future research focus on analyzing the specific story components that are missing from the narratives of children with a history of language delay. Klecan-Aker & Kelty (1990) suggest such components may include: "linking the microstructure elements together, linking the macrostructure elements together through temporal and cause-effect relationships, linking the microstructure elements to the macrostructure, describing the intentions of the characters and using an appropriate ending" (p. 213).

Further research possibilities could address narrative tasks using different procedures. Previous research reported that different stimuli can affect narrative complexity (Klecan-Aker et al. 1987). If various stimuli had been presented to elicit the stories, the children might have performed differently. Holloway (1986) had children retell stories under two conditions: (1) after having read aloud from a basal text; and (2) after having read aloud from a text whose language was matched for length and complexity to their own. She found that their language following the former basal text was shorter and less complex than their natural language. However, their language was no different from their natural language following the story that was matched for linguistic complexity. Designing materials for children that mimic their own language complexity may be beneficial in eliciting more complex oral language.

A story retelling task that includes the introduction of a naive listener may result in the use of more complete cohesive elements and amount of information retold. The children in the present study retold the story to the examiner, the person who had just told them the story.

The subjects in the present study were matched as closely as possible for socioeconomic status (mean SES for both normal group and late talkers group = 2.6). Further research could address children with different language histories from diverse socioeconomic backgrounds to investigate if that alone accounts for some of the variance in narrative abilities.

Clinical

These data suggest that three-fourths of those children whose expressive language does not meet normal criteria at age 20-34 months have essentially caught up to their normally developing peers by first grade. The remaining one-fourth continue to have impaired language skills at first grade age.

Of the variables examined in this study, the production of an overall mature narrative was the primary deficit noted in children with a history of expressive language delay. The manner in which the child deals with complex material is reflected in the general organization and form of the narrative produced. Such conventions as formal openings ("Once upon a time..."), and formal endings ("And they lived happily ever after.") demonstrate an understanding of the nature of stories.

In order to build narrative ability and use it as a basis for reading comprehension, language intervention should focus on not only morphology and syntax, but also on basic story grammar knowledge. A successful intervention program will analyze and systematically vary the factors that make narratives easier or more difficult. Clinicians may share these analyses with teachers to aid them in identifying more suitable materials for children of varying ability level. Westby (1991) suggests using book report forms that are matched to the child's level of narrative development. At the first level, children are asked to identify the title and author, describe the pictures

in the book, and draw a picture. Experiences with books are then carefully scaffolded until at the final level, children identify the title and author, identify the problem, tell how the characters solve the problem, then retell the story without pictures. Reading comprehension will likely increase if books and materials are well matched to a child's narrative ability.

Specific structures that focus on a particular narrative skill may be targeted. For example, to develop inferential skill, one could pause at various points while reading a story and have children predict what will happen next. Pausing to discuss a character's motivation, a character's reaction, or providing real-world relevance will enhance a child's comprehension of text. Through this type of interactive discourse, children will better understand the linguistic and cognitive concepts that occur in texts. The Hx children and the ELD children may need the additional teaching and training of narrative skills in order to succeed with literacy.

REFERENCES

- Applebee, A. N. (1978). The child's concept of story: Ages two to seventeen. Chicago: University of Chicago Press.
- Bauersmith, R. (1991). A study of the narrative skills in 4-year-olds with histories of normal and delayed language development. Unpublished manuscript. Portland State University.
- Bayley, N. (1969). Scales of infant development. New York: Psychological Corporation.
- Bernstein, D. K. & Tiegerman, E. (1989). Language and communication disorders in children (2nd Ed.). Columbus, Ohio: Merrill Publishing.
- Bishop, D. V. M. & Edmundson, A. (1987). Language-impaired 4-year-olds: Distinguishing transient from persistent impairment. Journal of Speech & Hearing Disorders, 52, 156-173.
- Culatta, B., Page, J. L., & Ellis, J. (1983). Story retelling as a communicative performance screening tool. Language, Speech & Hearing Services in Schools, 14, 66-74.
- Donahue, M. (1986). Linguistic and communication development in learning disabled children. In S. Ceci (Ed.), Handbook of cognitive, social, and neuropsychological aspects of learning disabilities, 263-289. Hillsdale, NJ: Erlbaum.
- Dunn, L. M. & Markwardt, F. C. (1970). Peabody Individual Achievement Test (PIAT). Circle Pines, MN: American Guidance Service.
- Feagans, L. & Applebaum, M. I. (1986). Validation of language subtypes in learning disabled children. Journal of Educational Psychology, 78, 358-364.
- Graybeal, C. M. (1981). Memory for stories in language-impaired children. Applied Psycholinguistics, 2, 269-283.
- Halliday, M. A. K. & Hasan, R. (1976). Cohesion in English. London: Longman Group Limited.

- Holloway, K. (1986). The effects of basal readers on oral language structures: A description of complexity. Journal of Psycholinguistic Research, 15, 141-151.
- Hunt, K. (1965). Grammatical structures written at three grade levels (Research Report No. 3). Champaign, IL: National Council of Teachers of English.
- Kintsch, W. (1977). On comprehending stories. In E. Just & A. Carpenter (Eds.), Cognitive process in comprehension (pp. 33-62). Hillsdale, NJ: Colbanar.
- Klecan-Aker, J. S. (1985). Syntactic abilities in normal and language deficient middle school children. Topics in Language Disorders, 5(3), 46-54.
- Klecan-Aker, J. S. & Kelty, K. R. (1990). An investigation of the oral narratives of normal and language-learning disabled children. Journal of Childhood Communication Disorders, 13, 207-216.
- Klecan-Aker, J. S., McIngvale, & Swank (1987). Stimulus considerations in narrative analysis of normal third grade children. Language and Speech, 30, 13-24.
- Lee, L. (1974). Developmental sentence analysis. Evanston, IL: Northwestern University Press.
- Liles, B. Z. (1985). Narrative ability in normal and language disordered children. Journal of Speech and Hearing Research, 28, 123-133.
- Liles, B. Z. (1987). Episode organization and cohesion conjunctions in narratives of children with and without language disorder. Journal of Speech and Hearing Research, 30, 185-196.
- McFarland, L. L. (1992). A study of the narrative skills in kindergarten children with normal, impaired, and late developing language development. Unpublished master's thesis, Portland State University, Portland, OR.
- McReynolds, L. V. & Kearns, K. P. (1983). Single-subject experimental designs in communicative disorders. Baltimore: University Park Press.
- Mandler, J. M. & Johnson, N. S. (1977). Remembrance of things parsed: Story structure and recall. Cognitive Psychology, 9, 111-151.

- Merritt, D. D. & Liles, B. Z. (1987). Story grammar ability in children with and without language disorder: Story generation, story retelling and story comprehension. Journal of Speech & Hearing Research, 30, 539-552.
- Merritt, D. D. & Liles, B. Z. (1989). Narrative analysis: Clinical applications of story generation and story retelling. Journal of Speech and Hearing Disorders, 54, 438-447.
- Miller, J. F. (1981). Assessing language production in children: Experimental procedures. Baltimore: University Park Press.
- Miller, J. R. & Chapman, R. (1985). Systematic analysis of language transcripts: User's manual. Madison, WI: University of Wisconsin.
- Newcomer, P. L. & Hammill, D. D. (1988). Test of Language Development-Primary (TOLD-2). Austin, Texas: Pro-Ed.
- Nockerts, A. (1991). Lexical Richness Computer Program. Oshkosh: WI.
- Owens, R. E. (1991). Language disorders: A functional approach to assessment and intervention. New York: Macmillan Publishing.
- Paul, R. & Smith, R. L. (1993). Narrative skills in 4-year-olds with normal, impaired, and late developing language. Journal of Speech and Hearing Research, 36, 592-598.
- Peterson, C. & McCabe, A. (1983). Developmental psycholinguistics: Three ways of looking at a child's narrative. New York: Plenum Press.
- Renfrew, C. E. (1977). The Bus Story: A test of continuous speech. Old Headington, Oxford, England: Author.
- Rescorla, L. (1989). The language development survey: a screening tool for delayed language in toddlers. Journal of Speech & Hearing Disorders, 54, 587-599.
- Ripich, D. N. & Griffith, P. L. (1988). Narrative abilities of children with learning disabilities and nondisabled children: Story structure, cohesion and propositions. Journal of Learning Disabilities, 21, 165-173.

- Roth F. P. & Spekman, N. J. (1986). Narrative discourse: Spontaneously generated stories of learning-disabled and normally achieving students. Journal of Speech & Hearing Disorders, 51, 8-23.
- Roth, F. P. & Spekman, N. J. (1989). The oral syntactic proficiency of learning disabled students: A spontaneous story sampling analysis. Journal of Speech and Hearing Research, 32, 67-77.
- Roth, F. P. & Spekman, N. J. (1991). Higher-order language processes and reading disabilities. In A. G. Kamhi & H. W. Catts (Eds.), Reading disabilities: A developmental language perspective (pp. 159-188). Needham Heights, MA: Allyn and Bacon.
- Scarborough, H. S. & Dobrich, W. (1990). Development of children with early language delay. Journal of Speech and Hearing Research, 33, 70-83.
- Scott, C. M. (1988a). A perspective on the evaluation of school children's narratives. Language Speech & Hearing Services in Schools, 19, 67-82.
- Scott, C. M. (1988b). Spoken and written syntax. In M. Nippold (Ed.), Later language development: Ages 9-19 (pp. 49-95). Boston: College Hill Press.
- Sparrow, S. S., Balla, D. A., Cicchetti, D. V. (1984). Vineland Adaptive Behavior Scales. Circle Pines, MN: American Guidance Service.
- Stein, N. & Glenn, C. (1979). An analysis of story comprehension in elementary school children. In R. O. Freedle (Ed.), New direction in discourse processing (Vol 2) (pp. 53-120). Norwood, NJ: Ablex.
- Westby, C. (1985). Learning to talk-talking to learn: Oral-literate language differences. In C. Simon (Ed.), Communication skills and classroom success: Therapy methodologies for language learning disabled students. San Diego, CA: College-Hill Press.
- Westby, C. (1991). Assessing and remediating text comprehension problems. In A. G. Kamhi & H. W. Catts (Eds.), Reading disabilities: A developmental language perspective (pp. 199-250). Needham Heights, MA: Allyn and Bacon.

APPENDIX A

HUMAN SUBJECTS RESEARCH FORM

OFFICE OF GRANTS AND CONTRACTS

DATE: September 1, 1992

TO: Karen E. Johnson

FROM: Martha Balshem, Chair, HSRRC *Martha Balshem*

RE: Your Project titled "A Study of the Narrative Skills of 6-year-olds with Histories of Normal and Delayed Language Development."

Your proposal does not need review by the Human Subjects Research Review Committee, as your procedures involve the use of secondary data, without names identifying the subjects from whom the data was collected.

If there are questions about this matter, please direct them to the Chair or the Secretary of HSRRC at 725-3417.

c. Office of Graduate Studies

APPENDIX B

QUESTIONNAIRE FOR PARENTS OF CHILDREN 15-30 MONTHS OLD

QUESTIONNAIRE FOR PARENTS OF CHILDREN 15-30 MONTHS OLD

What is your child's:

first name? _____ date of birth? _____

Mother's (or primary parent's) full name? _____

Mother's (or primary parent's) phone number? _____

Mother's occupation? _____

Father's occupation? _____

How many different words can your child say? (It's OK if the words aren't entirely clear, as long as you can understand them.)

none _____	5-10 _____	30-50 _____
less than five _____	10-30 _____	more than 50 _____

If your child says fewer than ten words, please list them here:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Does your child put words together to form short "sentences"?

Yes _____ No _____

If yes, please give three examples here:

Would you be interested in participating in later parts of this study?

Yes _____ No _____

APPENDIX C

OREGONIAN ARTICLE

Toddlers with delayed speech sought

A Portland State University researcher is looking for otherwise normal toddlers who begin talking late to serve as subjects in a study of delayed speech and its connection, if any, to later language problems.

Rhea Paul, a PSU assistant professor of speech communication, said the reasons for delayed speech in "late-blooming" young children and the early identification of toddlers who later will suffer chronic language delay had not been well-investigated, although perhaps 10 percent of American children may fall into those categories.

Paul is interested in studying children between the ages of 18 and 30 months in the Portland-Vancouver area who can say only five or fewer words, instead of the 50 or so most children can speak by that age. She

hopes to monitor their progress in speech development for two to five years, using such tools as speech tests and videotaped play sessions with their parents, to determine whether the children are indeed late-bloomers or whether their lack of early communication skills signals the start of severe speech and language delays.

Early identification of such children may allow early intervention and prevent future speech deficits, she said.

Paul's research is funded by the Fred Meyer Charitable Trust, the American Speech, Language and Hearing Foundation, and PSU. Parents who are interested in allowing their children to participate may contact Paul through the PSU Department of Speech.

The Oregonian, Portland, Oregon

APPENDIX D

LANGUAGE DEVELOPMENT SURVEY

Language Development Survey

Please check off each word that your child says SPONTANEOUSLY (not just imitates or understands)
It's okay to count words that aren't pronounced clearly or are in "baby talk" ("baba" for bottle.).

FOODS	ANIMALS	ACTIONS	HOUSE-	PERSONAL	CLOTHES	MODIFIERS	OTHER
apple	bear	bath	HOLD	brush	belt	allgone	A, B, C, etc.
banana	bee	breakfast	bathtub	comb	boots	all right	away
bread	bird	bring	bed	glasses	coat	bad	boo-boo
butter	bug	catch	blanket	key	diaper	big	bye-bye
cake	bunny	clap	bottle	money	dress	black	excuse me
candy	cat	close	bowl	paper	gloves	blue	here
cereal	chicken	come	chair	pen	hat	broken	hi, hello
cheese	cow	cough	clock	pencil	jacket	clean	in
coffee	dog	cut	crib	penny	mitten	cold	me
cookie	duck	dance	cup	pocketbook	pajamas	dark	meow
crackers	elephant	dinner	door	tissue	pants	dirty	my
drink	fish	doodoo	floor	toothbrush	shirt	dry	myself
egg	frog	down	fork	umbrella	shoes	good	night-night
food	horse	eat	glass	watch	slippers	happy	no
grapes	monkey	feed	knife		sneakers	heavy	off
gum	pig	finish	light	PEOPLE	socks	hot	on
hamburger	puppy	fix	mirror	aunt	sweater	hungry	out
hotdog	snake	get	pillow	baby		little	please
icecream	tiger	give	plate	boy	VEHICLES	mine	Sesame St.
juice	turkey	go	potty	daddy	bike	more	shut up
meat	turtle	have	radio	doctor	boat	nice	thank you
milk		help	room	girl	bus	pretty	there
orange	BODY	hit	sink	grandma	car	red	under
pizza	PARTS	hug	soap	grandpa	motorcycle	stinky	welcome
pretzel	arm	jump	spoon	lady	plane	that	what
raisins	bellybutton	kick	stairs	man	stroller	this	where
soda	bottom	kiss	table	mommy	train	tired	why
soup	chin	knock	telephone	own name	trolley	wet	woof-woof
spaghetti	ear	look	towel	pet name	truck	white	yes
tea	elbow	love	trash	uncle		yellow	you
toast	eye	lunch	T.V.	Ernie, etc.		yucky	yummy
water	face	make	window				1, 2, 3, etc.
	finger	nap					
	foot	open					
TOYS	hair	outside					
ball	hand	pattycake					
balloon	knee	peekaboo					
blocks	leg	peepee					
book	mouth	push					
crayons	neck	read					
doll	nose	ride					
picture	teeth	run					
present	thumb	see					
slide	toe	show					
swing	tummy	shut					
teddybear		sing					
		sit					
OUTDOORS	PLACES	sleep					
flower	church	stop					
house	home	take					
moon	hospital	throw					
rain	library	tickle					
sidewalk	park	up					
sky	school	walk					
snow	store	want					
star	zoo	wash					
street							
sun							
tree							

Please list any other words your child uses here:

Does your child combine two or more words into phrases?
(e.g. "more cookie," "car byebye," etc.) yes _____ no _____

Please write down three of your child's longest and best sentences or phrases.

1. _____

2. _____

3. _____

APPENDIX E

THE BUS STORY TEXT

Source: Renfrew, C. E. (1977). The Bus Story: A test of continuous speech. Old Headington, Oxford England: Author.

The Bus Story

Page No.

- 1 Once upon a time there was a very naughty bus.

While his driver was trying to mend him, he decided to run away.

- 2 He ran along the road beside a train.

They made funny faces at each other and raced each other.

But the bus had to go on alone, because the train went into a tunnel.

He hurried into the city where he met a policeman who blew his whistle and shouted, "Stop, bus."

- 3 But he paid no attention and ran on into the country.

He said, "I'm tired of going on the road."

So he jumped over a fence.

He met a cow who said, "Moo, I can't believe my eyes."

- 4 The bus raced down the hill.

As soon as he saw there was water at the bottom, he tried to stop.

But he didn't know how to put on his brakes.

So he fell in the pond with a splash and stuck in the mud.

When his driver found where he was, he telephoned for a crane to pull him out and put him back on the road again.

APPENDIX F

DEVELOPMENTAL SENTENCE SCORE:

SCORING CRITERIA

Lee, L. (1974). Developmental sentence analysis. Evanston, IL:
Northwestern University Press.

The Developmental Sentence Scoring (DSS) Reweighted Scores

Score	Indefinite Pronouns or Noun Modifiers	Personal Pronouns	Main Verbs	Secondary Verbs
1	it, this, that	1st and 2nd person: <i>I, me, my, mine, you, your(s)</i>	A. Uninflected verb: <i>I see you.</i> B. copula, is or 's: <i>It's red.</i> C. is + verb + ing: <i>He is coming</i>	
2		3rd person: <i>he, him, his, she, her, hers</i>	A. -s and -ed: <i>plays, played</i> B. irregular past: <i>ate, saw</i> C. Copula: <i>am, are, was, were</i> D. Auxiliary <i>am, are, was, were</i>	Five early-developing infinitives: <i>I wanna see (want to see)</i> <i>I'm gonna see (going to see)</i> <i>Lemme [to] see (let me [to] see)</i> <i>Let's [to] play (let [us to] play)</i>
3	A. no, some, more, all, lot(s), one(s), two (etc.), other(s), another B. something, somebody, someone	A. Plurals: <i>we, us, our(s), they, them, their</i> B. these, those		Non-complementing infinitives: <i>I stopped to play.</i> <i>I'm afraid to look.</i> <i>It's hard to do that.</i>
4	nothing, nobody, none, no one		A. can, will, may + verb: <i>may go</i> B. Obligatory do + verb: <i>don't go</i> C. Emphatic do + verb: <i>I do see.</i>	Participle, present or past: <i>I see a boy running.</i> <i>I found the toy broken.</i>
5		Reflexives: <i>myself, yourself, himself, herself, itself, themselves</i>		A. Early infinitival complements with differing subjects in kernels: <i>I want you to come.</i> <i>Let him [to] see.</i> B. Later infinitival complements: <i>I had to go. I told him to go. I tried to go. He ought to go.</i> C. Obligatory deletions: <i>Make it [to] go.</i> <i>I'd better [to] go.</i> D. Infinitive with wh-word: <i>I know what to get.</i> <i>I know how to do it.</i>
6		A. Wh-pronouns: <i>who, which, whose, whom, what, that, how many, how much</i> <i>I know who came.</i> <i>That's what I said.</i> B. Wh-word + infinitive: <i>I know what to do.</i> <i>I know who(m) to take</i>	A. could, would, should, might + verb: <i>might come, could be</i> B. Obligatory does, did + verb C. Emphatic does, did + verb	
7	A. any, anything, anybody, anyone B. every, everything, everybody, everyone C. both, few, many, each, several, most, least, much, next, first, last, second (etc.)	(his) own, one, oneself, whichever, whoever, whatever <i>Take whatever you like.</i>	A. Passive with <i>get</i> , any tense Passive with <i>be</i> , any tense B. must, shall + verb: <i>must come</i> C. have + verb + en: <i>I've eaten</i> D. have got: <i>I've got it.</i>	Passive infinitival complement: With <i>get</i> : <i>I have to get dressed.</i> <i>I don't want to get hurt.</i> With <i>be</i> : <i>I want to be pulled.</i> <i>It's going to be locked.</i>
8			A. have been + verb + ing <i>had been + verb + ing</i> B. modal + have + verb + en: <i>may have eaten</i> C. modal + be + verb + ing: <i>could be playing</i> D. Other auxiliary combinations: <i>should have been sleeping</i>	Gerund: <i>Swinging is fun.</i> <i>I like fishing.</i> <i>He started laughing.</i>

Score	Negatives	Conjunctions	Interrogative Reversals	Wh-Questions
1	it, this that + copula or auxiliary is, 's + not: It's <i>not</i> mine. This is <i>not</i> a dog. That is <i>not</i> moving.		Reversal of copula: <i>Isn't it red?</i> <i>Were they there?</i>	
2				A. who, what, what + noun: <i>Who am I? What is he eating?</i> <i>What book are you reading?</i> B. where, how many, how much, what . . . do, what . . . for <i>Where did it go?</i> <i>How much do you want?</i> <i>What is he doing?</i> <i>What is a hammer for?</i>
3		and		
4	can't, don't		Reversal of auxiliary be: <i>Is he coming? Isn't he coming? Was he going? Wasm't he going</i>	
5	isn't, won't	A. but B. so, and so, so that C. or, if		when, how, how + adjective: <i>When shall I come?</i> <i>How do you do it?</i> <i>How big is it?</i>
6		because	A. Obligatory do, does, did: <i>Do they run? Does it bite? Didn't it hurt?</i> B. Reversal of modal: <i>Can you play? Won't it hurt? Shall I sit down?</i> C. Tag question: <i>It's fun, isn't it? It isn't fun, is it?</i>	
7	All other negatives: A. Uncontracted negatives: <i>I can not go.</i> <i>He has not gone.</i> B. Pronoun-auxiliary or pronoun-copula contraction: <i>I'm not coming.</i> <i>He's not here.</i> C. Auxiliary-negative or copula-negative contraction: <i>He wasn't going.</i> <i>He hasn't been seen.</i> <i>It couldn't be mine.</i> <i>They aren't big.</i>			why, what if, how come, how about + gerund <i>Why are you crying?</i> <i>What if I won't do it?</i> <i>How come he is crying?</i> <i>How about coming with me?</i>
8		A. where, when, how, while, whether (or not), till, until, unless, since, before, after, for, as, as + adjective + as, as if, like, that, than <i>I know where you are.</i> <i>Don't come till I call.</i> B. Obligatory deletions: <i>I run faster than you [run].</i> <i>I'm as big as a man [is big].</i> <i>It looks like a dog [looks].</i> C. Elliptical deletions (score 0): <i>That's why [I took it].</i> <i>I know how [I can do it].</i> D. Wh-words + infinitive: <i>I know how to do it.</i> <i>I know where to go.</i>	A. Reversal of auxiliary have: <i>Has he seen you?</i> B. Reversal with two or three auxiliaries: <i>Has he been eating?</i> <i>Couldn't he have waited?</i> <i>Could he have been crying?</i> <i>Wouldn't he have been going?</i>	whose, which, which + noun: <i>Whose car is that?</i> <i>Which book do you want?</i>

APPENDIX G

DEVELOPMENTAL SENTENCE SCORE:

NORMS

Source: Lee, L. (1974). Developmental sentence analysis. Evanston, IL:
Northwestern University Press.

NORMS FOR DEVELOPMENTAL SENTENCE SCORING (REWEIGHTED)

APPENDIX H

THE BUS STORY:

INFORMATION SCORE CRITERIA

Source: Renfrew, C. E. (1977). The Bus Story: A test of continuous speech.
Old Headington, Oxford, England: Author.

Scoring for Information

Two points are given for each idea forming an essential part of the story, one point for each subsidiary item mentioned.

Score only those items listed below.

Main Items	Subsidiary Items
2 points each (1 point for half of item given)	1 point each
ran away/off	naughty/bad
beside/met train	(driver) mending/fixing
alone	(bus) decided
train in tunnel	made faces
into city/town	raced
saw/met policeman	(policeman) blew whistle
(policeman) said Stop	no attention
ran on/didn't stop	
into country	
tired of road	
jumped over fence/gate	
met/saw cow	(cow) mooed
ran downhill	(cow) talked
saw pond/water/river	(cow) couldn't believe eyes
tried to stop	
couldn't brake	
went/fell in water/pond/river	splash
found by driver	stuck
(driver) got crane	in mud
pulled out	(driver) telephoned

APPENDIX I

COHESION SCORING PROCEDURE

Source: Liles, B. Z. (1985). Narrative ability in normal and language disordered children. Journal of Speech and Hearing Research, 28, 123-133.

PROCEDURE FOR THE IDENTIFICATION OF COHESIVE MARKERS

In this procedure it is important that the examiner be familiar with the original story being told. First read the entire narrative to get an overall sense of the text. Then read each sentence separately as a complete unit before identifying those items in the sentence that mark cohesion.

At this stage in the procedure the examiner views each sentence as isolated from the text. From this viewpoint the examiner judges an item to be a cohesive element or not under the following conditions.

1. Definition of a cohesive marker. An element is identified as a cohesive marker if its meaning cannot be adequately interpreted by the listener and if the listener must "search" outside that sentence for the completed meaning.

In addition, an element may be judged a cohesive element if it is used as a linguistic marker that leads the listener to "expect" that its interpretation is outside the sentence (e.g., definite articles).

Cohesive markers may be reference, conjunction, or lexical.

2. Relationships within the sentence. Do not judge an item as a cohesive marker if the information referred to is recoverable within the sentence. The following are examples of information recovered within the sentence.

Some boys took their car home.

Personal reference their refers to boys; therefore, the information is recoverable within the sentence.

There was this scientist that had a hideout in these mountains where there was this radar tower to blow up metal things that fly in the air.

In the example above the information referred to by the use of this and these as selective demonstrative references (Halliday & Hasan, 1976 p. 70) is recovered within the sentence. Thus, the examiner would not identify this or these as a cohesive marker (i.e., information recoverable outside the sentence).

The next example demonstrates a cohesive and a noncohesive marker in the same sentence.

One of the boys went home.

The demonstrative reference the marks which or what boys, and serves as a cue to the listener that the information is recoverable outside the sentence and is, therefore, cohesive.

However, one refers within the sentence to boys and is not a cohesive marker.

3. Text influence on judgment. Although this procedure calls for the examiner to view each sentence as independent from the text when identifying cohesive markers, there are instances when the text must be considered. For example, in the sentence,

Marie didn't want to go on the hike.

the listener may need more information about Marie in order to comprehend the text. In this particular text, the listener would ask, "Who is Marie?"

Thus the decision as to whether a particular item is a cohesive marker or not is "text dependent." As texts vary specific items may vary in their cohesive function.

(a) Text influence on demonstrative reference. While the is a selective demonstrative reference, it may also be used in combination with words to express a unit of meaning (e.g., "the road," "the radio," "the newspaper"). It may be difficult to determine when the speaker intends the as a selective demonstrative reference or if the is used as an uninflected functor. To make this judgment, the examiner must take the text into consideration. For example, if the speaker used "the road" and the examiner judges that reference to a particular road is important within the text, he/she may judge that the speaker intended the to be used as a selective reference and would identify it as a cohesive marker. The following rule will facilitate judgment:

If in doubt about the use of because of the above reasons, do not code the as a selective demonstrative reference if a or some can be substituted without producing a crucial change in the meaning of the text.

4. Two or more cohesive markers within a sentence.

(a) Conjunctions. When two or more conjunctions (e.g., and then or and so then) are conjoined in a sentence, code only one of the conjunctions as a cohesive item. Select the conjunction that is the most complex according to the following hierarchy: (a) Causal, (2) Adversative, (3) Temporal, (4) Additive.

(b) Reference: Demonstrative and comparative. When both a demonstrative and comparative reference are used (e.g., the other) code only as one cohesive item (comparative) rather than as two items (demonstrative and comparative).

(c) Reference: Personal and demonstrative. If two or more references (i.e., either personal or demonstrative) are judged to be cohesive in the same sentence, code all markers even though they refer to a common reference, for example:

He took his comic books home.

Although the sentence structure indicated that his refers

within the sentence to he, there is no lexical support within the sentence to provide the listener with the information needed to know to whom his refers. Therefore, he and his are both cohesive.

After the examiner has identified the cohesive markers within each sentence according to the procedure presented above, he/she then reread the sentence with a different perspective. The markers that had been identified as cohesive are now viewed as part of the text.

Since each cohesive marker must (or should) be tied to the information recoverable elsewhere in the text, the examiner locates the sentence containing the tied information. The sentence number and item are noted.

PROCEDURE FOR THE IDENTIFICATION OF COHESIVE ADEQUACY

1. Complete tie. A tie is complete if the information referred to by the cohesive marker is easily found and defined with no ambiguity.

2. Noncomplete tie. A tie is judged to be noncomplete if:
(a) the information referred to by the cohesive marker is not provided in the text, for example,

Two boys went to see a movie.
They saw his car parked in front.

In this example, the speaker had not provided the information (i.e., whose car?) but used the personal reference his, cueing the listener to recover the information outside the sentence.

(b) the listener is guided to ambiguous information, for example,

Homer and Freddie went to the movie.
He enjoyed it very much.

In this case the listener would not know which boy enjoyed the movie.

Conjunctions are a special case of cohesive tying. All conjunctions that are not completely adequate are judged to be errors (or noncomplete). Accordingly, if the ideas or messages presented in the two conjoined sentences are unrelated or inappropriately sequenced, the conjunction used to join the ideas is judged to be noncomplete.

Further criteria for cohesion scoring (outlined by this investigator):

1. Sentences are T-units, not total utterances.
2. Use the information provided in false starts.
3. Do not count initial ands as conjunctions.
4. After doing the worksheet, count up all the complete and noncomplete ties.
5. The raw score for each narrative is the total number of complete ties.
6. The frequency is the percentage of complete ties used in the narrative. Divide the number of complete ties by the number of complete plus noncomplete ties.

Cohesion Worksheet:

Cohesive Marker line#/item	Tied to info in line#/item	Marker judgment complete/noncomplete
<hr/>		

TOTAL COMPLETE

<div> TOTAL NONCOMPLETE + TOTAL COMPLETE </div>	_____	=	_____	% OF COMPLETE TIES
---	-------	---	-------	--------------------

APPENDIX J

500 MOST COMMON WORDS

USED BY 6 YEAR OLDS

Source: Wepman, J. & Hass, W. (1969). A spoken word count. Chicago: Language Resource Association.

500 MOST
COMMON WORDS
USED BY 6 YEAR
OLDS

A

ABOUT
AFTER
AGAIN
AGAINST
ALL
ALMOST
ALONG
ALREADY
ALWAYS
AM
AN
AND
ANIMAL
ANOTHER
ANT
ANY
ANYBODY
ANYTHING
ARE
ARM
ARMY
AROUND
AS
ASK
ASLEEP
AT
ATE
AWAY
BABY
BACK
BAD
BAG
BARN
BE
BECAUSE
BED
BEDROOM
BEEN

BEFORE
BEHIND
BELOW
BETTER
BIG
BIRD
BIT
BLACK
BLANK
BOAT
BOOK
BOTH
BOUGHT
BOX
BOY
BRICK
BRIDGE
BRING
BROKE
BROKEN
BROTHER
BROUGHT
BUG
BUMP
BURGLAR
BURN
BURY
BUT
BUY
BY
CABIN
CALL
CAME
CAN
CAR
CARD
CARE
CARRY
CASTLE
CAT
CATCH
CAUGHT
CAUSE
CAVE

CEMETERY
CHAIR
CHILD
CHILDREN
CHOP
CLEAN
CLIMB
CLOSE
CLOTHES
COAL
COAT
COLD
COME
CORN
COUCH
COULD
COUNTRY
COUPLE
CROSS
CRY
CUT
DAD
DANCE
DARK
DAUGHTER
DAY
DEAD
DEAR
DECIDE
DID
DIE
DINOSAUR
DO
DOCTOR
DOES
DOG
DOLL
DONE
DOOR
DOWN
DRY
EACH
EARLY
EAT

ELSE
END
EVEN
EVER
EVERY
EVERYBODY
EVERYONE
EVERYTHING
EXCEPT
EYE
FACE
FAINT
FALL
FARM
FAST
FATHER
FEEL
FELL
FIELD
FIGHT
FIND
FINISH
FIRE
FIRST
FISH
FIVE
FIX
FLOOR
FLOWER
FOOD
FOR
FOREST
FORGET
FORGOT
FOUND
FOUR
FRIEND
FROM
FUNNY
GAME
GARDEN
GAVE
GET
GIRL
GIVE

GO
GONE
GOOD
GOT
GRANDFATHER
GRANDMA
GRANDMOTHER
GRASS
GRAVE
GREAT
GROUND
GROW
GUESS
GUITAR
GUN
GUY
HAD
HAIR
HAND
HAPPEN
HAPPILY
HAPPY
HARD
HARDLY
HAS
HAT
HAVE
HAY
HE
HEAD
HEARD
HELP
HER
HERE
HERSELF
HIGH
HILL
HIM
HIMSELF
HIS
HOLD
HOLE
HOME
HORSE
HOSPITAL

HOT
HOUSE
HOW
HUNDRED
HURT
HUSBAND
I
IF
IN
INSIDE
INSTRUMENT
INTO
IS
IT
ITS
JUMP
JUST
KEEP
KEPT
KID
KILL
KIND
KIND-OF (KINDA)
KISS
KNIFE
KNOCK
KNOW
LADY
LAKE
LAMP
LAND
LAY
LEAF
LEFT
LESSON
LET
LIGHT
LIKE
LINE
LISTEN
LITTLE
LIVE
LOG
LONG
LOOK

LOT
LOVE
LUNCH
MAD
MADE
MAKE
MAN
MARRY
MAY
MAYBE
ME
MEAN
MEN
MIGHT
MINUTE
MOM
MONEY
MONSTER
MORE
MORNING
MOTHER
MOUNTAIN
MOUSTACHE
MOVE
MUCH
MUST
MY
NAME
NEAR
NEVER
NEW
NEXT
NICE
NIGHT
NO
NOT
NOTHING
NOW
OF
OFF
OH
OKAY
OLD
ON
ONCE

ONE
ONLY
OPEN
OR
OTHER
OUT
OUTSIDE
OVER
OWN
PAINT
PAINTING
PAPER
PART
PAY
PEOPLE
PET
PICK
PICTURE
PIECE
PLACE
PLANT
PLAY
PLOW
POLICE
POND
PRACTICE
PRAY
PRETTY
PROBABLY
PULL
PUT
RAIN
RAN
READ
READY
REAL
REALLY
REST
RIDE
RIGHT
RIVER
ROBBER
ROCK
ROOM
ROPE

RUN
SAD
SAID
SAIL
SAME
SAW
SAY
SCHOOL
SEA
SEE
SEED
SENT
SHE
SHINE
SHOE
SHOT
SHOULD
SHUT
SICK
SIDE
SISTER
SIT
SIX
SKY
SLEEP
SNAKE
SNOW
SNOWY
SO
SOME
SOMEBODY
SOMEONE
SOMEPLACE
SOMETHING
SOMETIMES
SOMEWHERE
SOON
SORT-OR (SORTA)
STAIR
STAND
STAR
START
STATUE
STAY
STEP

STICK
STONE
STOP
STORE
STORM
STORY
STUFF
SUMMER
SUN
SWIM
TABLE
TAKE
TALK
TEACH
TELL
TEN
THAT
THE
THEIR
THEM
THEN
THERE
THESE
THEY
THING
THINK
THIS
THOSE
THOUGHT
THOUSAND
THREE
THROUGH
TIE
TILL
TIME
TIRED
TO
TOGETHER
TOLD
TOO
TOOK
TOP
TORNADO
TREE
TRY

TUNE
TURN
TURTLE
TV
TWO
UNDER
UNTIL
UP
UPON
US
USE
VERY
VIOLIN
WAIT
WAKE
WALK
WALL
WANT
WAR
WAS
WATCH
WATER
WAY
WE
WEAR
WELL
WENT
WHAT
WHATEVER
WHEN
WHERE
WHILE
WHITE
WHO
WHY
WIFE
WILL
WINDOW
WINTER
WITH
WOKE
WOLF
WOMAN
WON
WONDER

WOOD
WORK
WOULD
WRECK
WRONG
YEAH
YEAR
YES
YET
YOU
YOUR

APPENDIX K

NARRATIVE ANALYSIS CRITERIA

Source: adapted from the work of Applebee (1978), Klecan-Aker & Kelty (1990), Klecan-Aker, McIngvale & Swank (1987), McFarland (1992), and Stein & Glenn (1979)

NARRATIVE SCORING PROCEDURE

1)	Heap	Stories where children are labeling and/or describing events or actions. There is no cerebral theme.
2)	Sequence	Labeling or describing events about a central theme.
3)	Primitive Narrative	Contains the three story grammar components of A) initiating event, B) attempt or action and C) consequences around a central theme.
4)	Chain	Four story grammar components: initiating event, attempt or action, consequence, and character motivation or internal response. There may be an ending but it's abrupt.
5)	True Narrative	Contains at least 5 story grammar components, three of which are initiating event, attempt or action and consequence. The ending indicates a resolution of the problem.