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

Karen Elaine Johnson
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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:

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 ration, 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
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Stephen Kosokoff, Chair, Department of Speech Communication

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

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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.

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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

<table>
<thead>
<tr>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
</tr>
</tbody>
</table>

## CHAPTER

<table>
<thead>
<tr>
<th>I</th>
<th>INTRODUCTION</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement of Purpose</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II</th>
<th>REVIEW OF THE LITERATURE</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narratives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Structural Properties of Narratives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stages of Narrative Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Narrative Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Between Narratives and Academic Success</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Story Retelling</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Literature Regarding The Bus Story</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension and Memory in Story Retelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous Study of Subjects in this Study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III</th>
<th>METHODS AND PROCEDURES</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Recruitment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Group Assignment at Age 2 (Intake)
Group Assignment at First Grade Age

Procedures ........................................... 22

Instrumentation ........................................ 23

Audiotaping
Developmental Sentence Scoring
The Bus Story
Systematic Analysis of Language Transcript
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
<table>
<thead>
<tr>
<th>TABLE</th>
<th>Description</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Group Demographic Information at Intake and Followup</td>
<td>19</td>
</tr>
<tr>
<td>II</td>
<td>Group Description at First Grade</td>
<td>21</td>
</tr>
<tr>
<td>III</td>
<td>Mean, Standard Deviation, and Range of Each Group for Each of the Dependent Measures</td>
<td>37</td>
</tr>
<tr>
<td>IV</td>
<td>ANOVA, Tukey Test, and Kruskal–Wallis Test Results</td>
<td>38</td>
</tr>
<tr>
<td>V</td>
<td>Mann–Whitney U-Test Results</td>
<td>40</td>
</tr>
</tbody>
</table>
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**

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Intake Age*</th>
<th>SES†</th>
<th># Words</th>
<th>Pct. Male</th>
<th>Follow-up Age*</th>
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<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Min</td>
<td>Max</td>
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<td>Normal</td>
<td>24</td>
<td>25.7</td>
<td>4.6</td>
<td>16</td>
<td>34</td>
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<tr>
<td>LT</td>
<td>30</td>
<td>24.8</td>
<td>4.0</td>
<td>19</td>
<td>33</td>
<td>2.6</td>
</tr>
</tbody>
</table>

* 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>
<thead>
<tr>
<th>Group</th>
<th>( n )</th>
<th>Age*</th>
<th>% Male</th>
<th>DSS</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Normal</td>
<td>24</td>
<td>84.8</td>
<td>2.7</td>
<td>67</td>
</tr>
<tr>
<td>Hx</td>
<td>22</td>
<td>82.8</td>
<td>3.0</td>
<td>73</td>
</tr>
<tr>
<td>ELD</td>
<td>8</td>
<td>84.1</td>
<td>2.6</td>
<td>75</td>
</tr>
</tbody>
</table>

* 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 lavaliere 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.
Uoh.
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 gots 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**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td># T Units</td>
<td>N</td>
<td>16.2</td>
<td>2.5</td>
<td>13.0</td>
<td>22.0</td>
</tr>
<tr>
<td></td>
<td>Hx</td>
<td>15.3</td>
<td>4.1</td>
<td>8.0</td>
<td>23.0</td>
</tr>
<tr>
<td></td>
<td>ELD</td>
<td>14.8</td>
<td>3.7</td>
<td>9.0</td>
<td>20.0</td>
</tr>
<tr>
<td>MLU/T-unit</td>
<td>N</td>
<td>8.8</td>
<td>1.5</td>
<td>6.7</td>
<td>12.9</td>
</tr>
<tr>
<td></td>
<td>Hx</td>
<td>9.1</td>
<td>1.7</td>
<td>6.4</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
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<td>7.9</td>
<td>2.0</td>
<td>5.8</td>
<td>10.9</td>
</tr>
<tr>
<td>TTR</td>
<td>N</td>
<td>.55</td>
<td>.06</td>
<td>.43</td>
<td>.68</td>
</tr>
<tr>
<td></td>
<td>Hx</td>
<td>.52</td>
<td>.06</td>
<td>.42</td>
<td>.64</td>
</tr>
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<td>ELD</td>
<td>.57</td>
<td>.07</td>
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<td>.67</td>
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<tr>
<td>ASLS</td>
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<td>9.0</td>
<td>22.0</td>
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<tr>
<td></td>
<td>Hx</td>
<td>14.0</td>
<td>2.8</td>
<td>8.6</td>
<td>19.6</td>
</tr>
<tr>
<td></td>
<td>ELD</td>
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<td>2.9</td>
<td>8.0</td>
<td>16.2</td>
</tr>
<tr>
<td>Information</td>
<td>N</td>
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<td>8.9</td>
<td>12.0</td>
<td>44.0</td>
</tr>
<tr>
<td></td>
<td>Hx</td>
<td>26.0</td>
<td>9.2</td>
<td>8.0</td>
<td>44.0</td>
</tr>
<tr>
<td></td>
<td>ELD</td>
<td>22.4</td>
<td>11.1</td>
<td>5.0</td>
<td>39.0</td>
</tr>
<tr>
<td>Lexical Richness</td>
<td>N</td>
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<td>4.4</td>
<td>10.0</td>
<td>29.0</td>
</tr>
<tr>
<td>Unusual Word Types</td>
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<td>9.0</td>
<td>28.0</td>
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<tr>
<td></td>
<td>ELD</td>
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<td>4.6</td>
<td>8.0</td>
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<td>Cohesion</td>
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<tr>
<td>% Complete Ties</td>
<td>Hx</td>
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<td>19.2</td>
<td>38.0</td>
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<td></td>
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<td>63.1</td>
<td>21.9</td>
<td>23.0</td>
<td>95.0</td>
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<tr>
<td>New Prop</td>
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<td>93.0</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>Hx</td>
<td>99.3</td>
<td>2.7</td>
<td>88.0</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>ELD</td>
<td>98.5</td>
<td>2.8</td>
<td>94.0</td>
<td>100.0</td>
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<tr>
<td>Narrative Stage</td>
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<td>.4</td>
<td>4.0</td>
<td>5.0</td>
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<tr>
<td>Assignment</td>
<td>Hx</td>
<td>3.8</td>
<td>.5</td>
<td>3.0</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>ELD</td>
<td>3.3</td>
<td>.7</td>
<td>2.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>
TABLE IV
ANOVA, TUKEY TEST, AND KRUSKAL-WALLIS TEST RESULTS

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

* - 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

<table>
<thead>
<tr>
<th>Groups</th>
<th>U-TEST STATISTIC</th>
<th>PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/Hx</td>
<td>364.00*</td>
<td>(p &lt; .05)</td>
</tr>
<tr>
<td>N/ELD</td>
<td>163.50*</td>
<td>(p &lt; .05)</td>
</tr>
<tr>
<td>Hx/ELD</td>
<td>123.50</td>
<td>NS</td>
</tr>
<tr>
<td>N/Hx + ELD</td>
<td>527.50*</td>
<td>(p &lt; .05)</td>
</tr>
</tbody>
</table>

* - 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


APPENDIX A

HUMAN SUBJECTS RESEARCH FORM
OFFICE OF GRANTS AND CONTRACTS

DATE: September 1, 1992

TO: Karen E. Johnson

FROM: Martha Balshem, Chair, HSRRC

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" ("baby" for bottle).

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<th>ANIMALS</th>
<th>ACTIONS</th>
<th>HOUSE</th>
<th>PERSONAL</th>
<th>CLOTHES</th>
<th>MODIFIERS</th>
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<td>BOOK</td>
<td>BOOK</td>
<td>YOU</td>
<td></td>
</tr>
<tr>
<td>sun</td>
<td>tree</td>
<td></td>
<td></td>
<td>BOOK</td>
<td>BOOK</td>
<td>YOU</td>
<td></td>
</tr>
</tbody>
</table>

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

The Bus Story

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

## The Developmental Sentence Scoring (DSS) Reweighted Scores

<table>
<thead>
<tr>
<th>Score</th>
<th>Indefinite Pronouns or Noun Modifiers</th>
<th>Personal Pronouns</th>
<th>Main Verbs</th>
<th>Secondary Verbs</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>it, this, that</td>
<td>1st and 2nd pers. (I, me, my, mine, you, yours)</td>
<td>A. Uninflected verb: <em>I</em> see. B. Inflected verb: <em>It’s</em> red. C. <em>Is</em> verb + ing: <em>He is coming</em></td>
<td>Five early-developing infinitival: <em>I want to see (want to see)</em></td>
<td><em>I’m going to see (going to)</em> leaves (it) over (let me to see) Let's (to) play (let us to play)*</td>
</tr>
<tr>
<td>2</td>
<td>3rd person: he, him, his, she, her, hers</td>
<td><em>A.</em> - and -ed: played B. Irregular past: <em>sat, sat</em> C. Copula: <em>am, are, was, were</em> D. Auxiliary <em>am, are, was, were</em></td>
<td>*It, this, that 1st and 2nd person:/, *muu, yow, yowr(s} I <em>su you.</em></td>
<td><em>B.</em> copula or <em>is or ‘s:</em> <em>It’s</em> red.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>A. no, none, most, all, little, one(s), two(s) (etc.), others, another B. something, somebody, someone</td>
<td>1st and 2nd perso:n:/, *muu, yow, yowr(s} I <em>su you.</em></td>
<td>A. can, will, may + verb: <em>may go</em> B. Obligatory <em>do</em> + verb: <em>don’t go</em> C. Emphatic <em>do</em> + verb: <em>I do</em></td>
<td><em>A.</em> non-complementing infinitives: <em>I stopped to play.</em> <em>I’m afraid to do.</em> <em>It’s hard to do that.</em></td>
<td><em>Participle, present or past:</em> <em>I see, boy running.</em> <em>I found the toy broken.</em></td>
</tr>
<tr>
<td>4</td>
<td>nothing, nobody, none, no one</td>
<td>Reflects myself, yourself, himself, herself, their, themselves</td>
<td>A. Whose pronoun: who, which, whose, whom, <em>what, that,</em> how many, how much I know who was This is what I said B. Wh-words + infinitive: <em>I know what to do.</em> <em>I know how to do it.</em></td>
<td><em>A.</em> Early infinitival complements with differing subjects in benefic: <em>I want you to come.</em> Let him (to) see.</td>
<td><em>I know what to get.</em> <em>I know how to do it.</em></td>
</tr>
<tr>
<td>5</td>
<td>A. Whom pronoun: who, which, whose, whom, <em>what, that,</em> how many, how much I know who was This is what I said B. Wh-words + infinitive: <em>I know what to do.</em> <em>I know how to do it.</em></td>
<td>A. could, would, should, might + verb: <em>might come, could be</em> B. Obligatory <em>do</em> + verb: <em>Did you see?</em> C. Emphatic <em>do</em> + verb: <em>I do</em></td>
<td><em>Passive with get,</em> <em>any tense:</em> Passive with <em>be,</em> <em>any tense:</em> <em>must, shall + verb + infinitive</em></td>
<td><em>A.</em> Early infinitival complements with differing subjects in benefic: <em>I want you to come.</em> Let him (to) see.</td>
<td><em>I know what to get.</em> <em>I know how to do it.</em></td>
</tr>
<tr>
<td>6</td>
<td>A. Whose pronoun: who, which, whose, whom, <em>what, that,</em> how many, how much I know who was This is what I said B. Wh-words + infinitive: <em>I know what to do.</em> <em>I know how to do it.</em></td>
<td>A. could, would, should, might + verb: <em>might come, could be</em> B. Obligatory <em>do</em> + verb: <em>Did you see?</em> C. Emphatic <em>do</em> + verb: <em>I do</em></td>
<td><em>Passive with get,</em> <em>any tense:</em> Passive with <em>be,</em> <em>any tense:</em> <em>must, shall + verb + infinitive</em></td>
<td><em>A.</em> Early infinitival complements with differing subjects in benefic: <em>I want you to come.</em> Let him (to) see.</td>
<td><em>I know what to get.</em> <em>I know how to do it.</em></td>
</tr>
<tr>
<td>7</td>
<td>A. any, anything, anybody, everyone B. <em>away, everything, everybody, everyone</em> C. both, few, many, each, several, most, least, much, most, first, last, second (etc.)</td>
<td>(this) own, one(s), oneself, whichever, whoever, wherever Take whatever you like</td>
<td>A. Passive with get, <em>any tense:</em> Passive with <em>be,</em> <em>any tense:</em> <em>must, shall + verb + infinitive</em> B. <em>have, have + verb + subject</em> C. <em>have, have + verb + infinitive:</em> <em>I’ve eaten</em> D. <em>have, have + verb + infinitive:</em> <em>I’ve got it.</em></td>
<td><em>Passive infinitival complement:</em> <em>With get:</em> <em>I have to get dressed.</em> I don’t want to get hurt. <em>With be:</em> <em>I want to be pulled.</em> It’s going to be locked. <em>General:</em> <em>Swimming is fun.</em> I like Arjan, <em>He started laughing.</em></td>
<td><em>A.</em> Early infinitival complements with differing subjects in benefic: <em>I want you to come.</em> Let him (to) see.</td>
</tr>
<tr>
<td>Score</td>
<td>Negatives</td>
<td>Conjunctions</td>
<td>Interrogative Reversals</td>
<td>Wh-Questions</td>
<td></td>
</tr>
<tr>
<td>-------</td>
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<td>--------------</td>
<td>-------------------------</td>
<td>-------------</td>
<td></td>
</tr>
</tbody>
</table>
| 1     | it, this, that + copula or auxiliary is = not:  
   This is not a dog.  
   That is not moving. | Reversal of copula  
   Am/is is not?  
   Were they there? | A. who, what, what - does  
   Who am I?  
   What is he eating?  
   What book are you reading?  
   B. where, how many, how much, what ... do, what ... for  
   Where did it go?  
   How much do you want?  
   What is he doing?  
   What is a hammer for? |
| 2     | and | | | |
| 3     | isn't, doesn't | Reversal of auxiliary be:  
   Is he coming?  
   Isn't he coming?  
   Was he going?  
   Wasn't he going. | when, how, how = adjective  
   When shall I come?  
   How do you do it?  
   How big is it? |
| 4     | isn't, won't | A. but  
   B. so, and so, so that  
   C. or, if | | |
| 5     | because | A. Obligatory do, does, did:  
   Do they run?  
   Does it hurt?  
   Didn't it hurt?  
   B. Reversal of modal:  
   Can you play?  
   Won't it hurt?  
   Shall I sit down?  
   C. Tag questions:  
   It's fun, isn't it?  
   It isn't fun, is it? | A. in case, how, about  
   Why are you crying?  
   What if I won't do it?  
   How come he is crying?  
   How about coming with me? |
| 6     | All other negatives:  
   A. Unconstructed negatives:  
   I can not go.  
   He has not gone.  
   B. Pronoun-auxiliary or pronoun-copula contraction:  
   He's not going.  
   He's not here.  
   C. Auxiliary-negative or copula-negative contraction:  
   He wasn't going.  
   He hasn't been seen.  
   It couldn't be mine.  
   They aren't big. | | A. why, what if, how, about  
   Why are you crying?  
   What if I won't do it?  
   How come he is crying?  
   How about coming with me? |
| 7     | A. where, when, how, while, whatever (or etc.), whenever (or etc.), anywhere, since, before, after:  
   For as, as + adjective = as,  
   as if, like, just, that  
   I know where you are.  
   Don't come till I call.  
   B. Obligatory deletion:  
   I ran faster than you [ran].  
   I'm as big as a man [as big]  
   It looks like a dog [looks].  
   C. Elliptical deletions (score 0):  
   That's why [I look at].  
   I know how [I can do it].  
   D. Wh-words + infinitive:  
   I know how to do it.  
   I know where to go | A. Reversal of auxiliary have:  
   Has he seen you?  
   B. Reversal with two or three auxiliaries:  
   Has he been eating?  
   Could he have waited?  
   Could he have been crying?  
   Wouldn't he have been going? | B. where, which, which + noun  
   Where was that?  
   Where are you?  
   Which book do you want? |
APPENDIX G

DEVELOPMENTAL SENTENCE SCORE:

NORMS

APPENDIX H

THE BUS STORY:

INFORMATION SCORE CRITERIA

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.

<table>
<thead>
<tr>
<th>Main Items</th>
<th>Subsidiary Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 points each (1 point for half of item given)</td>
<td>1 point each</td>
</tr>
<tr>
<td>ran away/off</td>
<td>naughty/bad</td>
</tr>
<tr>
<td>beside/met train</td>
<td>(driver) mending/fixing</td>
</tr>
<tr>
<td>alone</td>
<td>(bus) decided</td>
</tr>
<tr>
<td>train in tunnel</td>
<td>made faces</td>
</tr>
<tr>
<td>into city/town</td>
<td>raced</td>
</tr>
<tr>
<td>saw/met policeman</td>
<td>(policeman) blew whistle</td>
</tr>
<tr>
<td>(policeman) said Stop</td>
<td>no attention</td>
</tr>
<tr>
<td>ran on/didn't stop</td>
<td>(cow) mooed</td>
</tr>
<tr>
<td>into country</td>
<td>(cow) talked</td>
</tr>
<tr>
<td>tired of road</td>
<td>(cow) couldn't believe eyes</td>
</tr>
<tr>
<td>jumped over fence/gate</td>
<td>splash</td>
</tr>
<tr>
<td>met/saw cow</td>
<td>stuck</td>
</tr>
<tr>
<td>ran downhill</td>
<td>in mud</td>
</tr>
<tr>
<td>saw pond/water/river</td>
<td>(driver) telephoned</td>
</tr>
</tbody>
</table>
APPENDIX I

COHESION SCORING PROCEDURE

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) Adversitive, (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 rereads 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:

<table>
<thead>
<tr>
<th>Cohesive Marker line#/item</th>
<th>Tied to info in line#/item</th>
<th>Marker judgment complete/noncomplete</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL COMPLETE

\[
\frac{\text{TOTAL NONCOMPLETE}}{\text{TOTAL COMPLETE}} + \frac{\text{TOTAL COMPLETE}}{\text{TOTAL COMPLETE}} = \frac{\%}{100} \text{ OF COMPLETE TIES}
\]
APPENDIX J

500 MOST COMMON WORDS
USED BY 6 YEAR OLDS

<table>
<thead>
<tr>
<th>500 MOST COMMON WORDS USED BY 6 YEAR OLDS</th>
<th>BEFORE</th>
<th>CEMETERY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BEHIND</td>
<td>CHAIR</td>
</tr>
<tr>
<td></td>
<td>BELOW</td>
<td>CHILD</td>
</tr>
<tr>
<td></td>
<td>BETTER</td>
<td>CHILDREN</td>
</tr>
<tr>
<td></td>
<td>BIG</td>
<td>CHOP</td>
</tr>
<tr>
<td></td>
<td>BIRD</td>
<td>CLEAN</td>
</tr>
<tr>
<td></td>
<td>BIT</td>
<td>CLIMB</td>
</tr>
<tr>
<td></td>
<td>BLACK</td>
<td>close</td>
</tr>
<tr>
<td></td>
<td>BLANK</td>
<td>clothes</td>
</tr>
<tr>
<td></td>
<td>BOAT</td>
<td>coal</td>
</tr>
<tr>
<td></td>
<td>BOOK</td>
<td>coat</td>
</tr>
<tr>
<td></td>
<td>BOTH</td>
<td>cold</td>
</tr>
<tr>
<td></td>
<td>BOUGHT</td>
<td>come</td>
</tr>
<tr>
<td></td>
<td>BOX</td>
<td>corn</td>
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<td></td>
<td>BOY</td>
<td>COUCH</td>
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<td></td>
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<td>BROKEN</td>
<td>CRY</td>
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<tr>
<td></td>
<td>BROTHER</td>
<td>CUT</td>
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<tr>
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<td>BUT</td>
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<tr>
<td></td>
<td>BY</td>
<td>DID</td>
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<tr>
<td></td>
<td>CABIN</td>
<td>DIE</td>
</tr>
<tr>
<td></td>
<td>CALL</td>
<td>DINOSAUR</td>
</tr>
<tr>
<td></td>
<td>CAME</td>
<td>DO</td>
</tr>
<tr>
<td></td>
<td>CAN</td>
<td>DOCTOR</td>
</tr>
<tr>
<td></td>
<td>CAR</td>
<td>DOES</td>
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<tr>
<td></td>
<td>CARD</td>
<td>DOG</td>
</tr>
<tr>
<td></td>
<td>CARE</td>
<td>DOLL</td>
</tr>
<tr>
<td></td>
<td>CARRY</td>
<td>DONE</td>
</tr>
<tr>
<td></td>
<td>CATCH</td>
<td>DOOR</td>
</tr>
<tr>
<td></td>
<td>CAUGHT</td>
<td>DOWN</td>
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<td></td>
<td>CAUSE</td>
<td>DRY</td>
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<tr>
<td></td>
<td>CAVE</td>
<td>EACH</td>
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<td></td>
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<td>EAT</td>
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<td>LOT</td>
<td>ONE</td>
<td>RUN</td>
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<tr>
<td>LOVE</td>
<td>ONLY</td>
<td>SAD</td>
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<tr>
<td>LUNCH</td>
<td>OPEN</td>
<td>SAID</td>
</tr>
<tr>
<td>MAD</td>
<td>OR</td>
<td>SAIL</td>
</tr>
<tr>
<td>MADE</td>
<td>OTHER</td>
<td>SAME</td>
</tr>
<tr>
<td>MAKE</td>
<td>OUT</td>
<td>SAW</td>
</tr>
<tr>
<td>MAN</td>
<td>OUTSIDE</td>
<td>SAY</td>
</tr>
<tr>
<td>MARRY</td>
<td>OVER</td>
<td>SCHOOL</td>
</tr>
<tr>
<td>MAY</td>
<td>OWN</td>
<td>SEA</td>
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STICK TUNE WOOD
STONE TURN WORK
STOP TURTLE WOULD
STORE TV WRECK
STORM TWO WRONG
STORY UNDER YEAH
STUFF UNTIL YEAR
SUMMER UP YES
SUN UPON YET
SWIM US YOU
TABLE USE YOUR
TAKE VERY
TALK VIOLIN
TEACH WAIT
TELL WAKE
TEN WALK
THAT WALL
THE WANT
THEIR WAR
THEM WAS
THEN WATCH
THERE WATER
THESE WAY
THEY WE
THING WEAR
THINK WELL
THIS WENT
THOSE WHAT
THOUGHT WHATEVER
THOUSAND WHEN
THREE WHERE
THROUGH WHILE
TIE WHITE
TILL WHO
TIME WHY
TIRED WIFE
TO WILL
TOGETHER WINDOW
TOLD WINTER
TOO WITH
TOOK WOKE
TOP WOLF
TORNADO WOMAN
TREE WON
TRY WONDER
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

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<th></th>
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<tr>
<td>1</td>
<td>Heap</td>
<td>Stories where children are labeling and/or describing events or actions. There is no cerebral theme.</td>
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<tr>
<td>2</td>
<td>Sequence</td>
<td>Labeling or describing events about a central theme.</td>
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<td>3</td>
<td>Primitive Narrative</td>
<td>Contains the three story grammar components of A) initiating event, B) attempt or action and C) consequences around a central theme.</td>
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<td>4</td>
<td>Chain</td>
<td>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.</td>
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<td>5</td>
<td>True Narrative</td>
<td>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.</td>
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