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# Narrative Development in Late Talkers: Early School Age

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Children with slow expressive language development (SELD) as toddlers and a control group of children with normal language development (NL) were followed to early school age. Children with SELD were, at that point, subdivided into two groups: those who had moved within the normal range of expressive language (the History of Expressive Language Delay [HELD] subgroup); and those who continued to score below the normal range in expressive language at school age (the Expressive Language Delay [ELD] subgroup). During their kindergarten, first, and second grade years, they were administered a narrative generation task. Narratives were analyzed for MLU, lexical diversity, amount of information included, proportion of complete cohesive ties, and overall stage of narrative maturity. In kindergarten, children with normal language history scored significantly higher than those with HELD and ELD on lexical diversity and narrative stage; and higher than those with ELD in proportion of complete cohesive ties. In first grade, children with normal language history again scored significantly higher than those with HELD and ELD on narrative maturity, with no other significant differences. In second grade, there were no significant differences among the groups.

**KEY WORDS:** narrative, language delay, learning disability

The ability to tell a story involves a number of higher-level language and cognitive skills. These include the ability to sequence events, to create a cohesive text through the use of explicit linguistic markers, to use precise vocabulary, to convey ideas without extralinguistic support, to understand cause-effect relationships, and to structure the narration along the lines of culture-specific story schemata that aid the listener in comprehending the tale. Narrative skills are thought to form the bridge between oral language and literacy by providing examples of the extended, decontextualized, cohesive discourse units that children will encounter in written texts (Westby, 1989). Bishop and Edmundson (1987) showed that narrative skill, as measured on a standard story retelling task, was one of the best predictors of school success in 4-year-olds with language disabilities. Feagans and Appelbaum (1986) found narrative ability to be a significant component in predicting academic outcome in primary grade children with learning disabilities. Thus, the level of achievement in narrative ability could be an important index of risk for future linguistic and academic problems in children with a history of delayed language development.

The Portland Language Development Project (PLDP) has been following a cohort of children identified when they were toddlers as "late talkers," or slow in expressive language development (SELD). Several recent studies (Paul, 1993; Rescorla & Schwartz, 1990; Thal, 1991) indicate that such children are at risk for chronic delays in language acquisition, at least through the preschool period.

Small sample studies of similar children (Scarborough & Dobrich, 1990) suggest that there are also risks for academic learning difficulties in such children, even when they appear to "grow out of" the oral language delays. Other research, though, suggests that the long-term risks for children with SELD may be small. Bishop and Adams (1990) found that children with delays in language development at age 4 who

moved into the normal range by age 5½ did not generally show significant reading problems by age 8½. Whitehurst and Fischel (1994) reported that reading and mathematics scores obtained from school records of children who presented as late talkers as toddlers were well within the normal range when these children were 7 years old. Paul (1996) reported that over 70% of children with a history of SELD as toddlers had moved within the normal range of expressive language performance by kindergarten and even those who had not were able to function within (though at the low end of) the normal range on school achievement testing in kindergarten and first grade. Paul, Clancy, Anderson, and Murray (1996) reported that over 80% of children with a history of SELD had moved within the normal range of expressive language and school achievement by second grade and even those who continued to have immature expressive language did not differ significantly from peers with normal language histories in either reading comprehension or reading recognition (decoding) skills.

Even though these late talkers appear to do relatively well during the early school years, according to most research, the question is often raised about their long-term risks as the demands of the school curriculum intensify. Chall (1983) has shown that a transition occurs in the middle elementary grades from "learning to read" to "reading to learn," when children are required to marshal their literacy skills in order to acquire new information from written material. Even if children with SELD appear to be acquiring basic language and literacy skills during the early school years, will they run into trouble as more demands are placed on these abilities?

Although this study cannot address this question directly, because subjects were only followed to second grade, one way to approach an answer is to look at the development of higher level language skills, such as narration, as an index of the child's ability to perform more demanding language tasks. There is reason to suspect that complex language skills such as narrative may cause problems for children with SELD. Paul and Smith (1993) found, in studying this population at age 4, that children with a history of SELD as toddlers performed significantly more poorly than peers with normal language histories on a variety of measures of narrative development. Even children with a history of SELD who had moved within the normal range on a measure of syntactic production in free speech were not significantly better on several of the narrative measures than those who continued to score below the normal range in syntax. Thus, narrative appears to be an area in which children with SELD show deficits, at least at the preschool level. Learning whether these deficits persist to early school age will help to fill out the picture of their prognosis for academic success in

the demanding intermediate school years. The present study tracks narrative development in children with SELD through the early school grades to determine whether deficits in narrative skills, which might jeopardize later academic achievement, persist.

## Method

### Subjects

**Diagnostic group assignments at intake.** The children included in this report have been involved in the Portland Language Development Project (PLDP). The PLDP is a 5-year longitudinal study following children who, at age 2, were identified as slow in expressive language development (SELD), and comparing them to normally speaking peers on a variety of linguistic and nonlinguistic measures. To form the database for the PLDP, questionnaires were distributed in local pediatric offices, asking parents to indicate the approximate number of words their 18-30-month-old children produced, and to provide some demographic information such as address, phone number, and occupation of parents. Fischel, Whitehurst, Caulfield, and DeBaryshe (1989) have shown that parent report of expressive vocabulary size in toddlers is an excellent index of language status. About 300 questionnaires were collected. In addition, advertisements for 2-year-olds who were "late talkers" were placed in local newspapers and on radio. Interested parents were asked to contact the first author by phone. When they did, they were asked over the phone the same questions as were on the questionnaire distributed to the pediatric offices. From this database, all children whose parents indicated that the child produced fewer than 50 words at 20-34 months of age were contacted and invited to participate in the long-term study. A group of children whose parents indicated that the child used more than 50 words at 20-34 months was selected from the same database and invited to participate as a contrast group. The contrast group was matched to the late talking group on the basis of birth order, age, and socioeconomic status. It should be noted that this was an entirely middle class sample, with no children from families in poverty represented in it. Sex ratios were similar, though not identical in the two groups. (See Table 1 for demographic information on the groups at intake.)

Families who agreed to participate in the study were invited to bring their children to Portland State University for the intake evaluation. At that time, in order to confirm a child's placement in either the normal or late talker group, parents were asked to complete Rescorla's (1989) Lan-

**TABLE 1. Subject demographic information at intake.**

Group	n (% male)	Mean age (SD)	Mean SES <sup>1</sup> (SD)	Mean vocabulary size (SD)
NL	26 (61.5)	25.7 mos. (4.5)	3.42 (1.06)	192.9 (91.7)
SELD	30 (73.3)	24.6 mos. (3.6)	3.60 (0.77)	22.7 (21.2)

<sup>1</sup>using Hollingshead's (1975) four factor scale of social position, on a scale from 1 to 5, based on Myers & Bean (1968).

guage Development Survey (LDS), a questionnaire containing a checklist of 300 of the most common words in children's early vocabularies. Rescorla (1989) has shown that the LDS has high reliability, validity, sensitivity, and specificity for identifying language delay in 2-year-olds. Rescorla (1989), as well as Reznick and Goldsmith (1989), and Dale, Bates, Reznick, and Morisset (1989), have shown that parent checklist formats are valid and reliable indices of expressive vocabulary size in toddlers.

Using the LDS, children were confirmed as having SELD if parents indicated that the child used fewer than 50 words at 20–34 months of age. All children identified as SELD were invited to participate in the study. Children were invited to remain in the normal contrast group if parents reported expressive vocabulary sizes of more than 50 words on the LDS (in fact, none of the children in the normal language group were reported to produce fewer than 85 words on the LDS). As Table 1 shows, average vocabulary size for the SELD group was 23 words with a standard deviation of 21; average size for the normal language (NL) group was 193 with a standard deviation of 92. Most of the children in this group were reported to use more than 100 words and many were reported to use more than 200.

All subjects had developmental quotients above 85 on the Bayley Scales of Infant Development (Bayley, 1969). Further, the groups were comparable in terms of number of nonverbal items passed on the Bayley,  $M = 14.2$  ( $SD = 4.7$ ) for the SELDs;  $M = 15.5$  ( $SD = 3.5$ ) for the NLs. All passed speech reception screenings in a sound field at 25 dB, using visually reinforced audiometry, and all were observationally screened for any history or evidence of neurological or neuromotor deficits or autism. Detailed demographic data and linguistic profiles on this cohort are presented by Paul (1991). The children were seen yearly for reevaluation as part of the PLDP for each of 5 consecutive years. During each of these re-evaluations, families of both SELD and NL children were counseled on methods for stimulating language development in the home. Parents of SELD children were offered the option each time of being referred for intervention. About 30% of the families of children with SELD elected to take advantage of these referrals. None of the children was enrolled in intensive, full-time intervention. Intervention history data are given in more detail by Paul (1996).

**Diagnostic group assignment at school age.** The present study will report on data collected when the children were seen for reevaluations of language and related skills during their kindergarten, first, and second grade years. (Numbers of subjects differ slightly from year to year since not every subject participated in every one of the three follow-up evaluations.) At each of these evaluations, subjects were assigned to one of three groups on the basis of: (a) original diagnostic assignment at intake (NL or SELD), and (b), current performance on productive syntax in spontaneous speech, as indexed by the Developmental Sentence Score (Lee, 1974).

The DSS was chosen as the index of expressive language competence for several reasons. First, as a free speech sample procedure, it is a more ecologically valid measure of language production than are standardized measures. MLU was also computed for the speech samples in the data, but

as Lahey, Liebergott, Chesnick, Menyuk, and Adams (1992) pointed out, MLU is not a reliable index of later language development. In looking at MLU in the PLDP sample, it appeared less sensitive to developmental change than did DSS. Because the DSS appeared to be the most ecologically valid and sensitive measure of productive language available in the PLDP data, it was used as a single index of this variable. However, it should be pointed out that a single index may not capture all aspects of a child's productive language.

The tenth percentile was used as a cutoff for the normal range of syntactic development, following Lee's (1974) guidelines for use of the DSS. Group assignments at school age, then, were made according to the following criteria:

1. The Normal Language (NL) group: These children were identified as having normal (more than 50 word) expressive vocabularies at the intake assessment. All scored above the tenth percentile for their age on the DSS (Lee, 1974) at each follow-up assessment in kindergarten, first, and second grade.

2. The History of Expressive Language Delay (HELD) group: This group consisted of children who were identified at age 2 as SELD due to small (fewer than 50 word) expressive vocabularies but who, at the current re-evaluation (in either kindergarten, first, or second grade), had moved within the normal range (above the tenth percentile) in terms of DSS score.

3. The Expressive Language Disorder (ELD) group: These children were identified at age 2 as SELD and continued to show deficits in expressive syntax and morphology, as indexed by DSS scores below the tenth percentile at the current re-evaluation (in either kindergarten, first, or second grade).

Average age and DSS scores for each of the three diagnostic groups at each of the three follow-up assessments are given in Table 2.

## Procedures

At each of the three follow-up evaluations, all subjects passed hearing screening at 20 dB (ASHA, 1985). A spontaneous speech sample was gathered during a 15-minute adult-child interaction at each follow-up visit. Developmental Sentence Score (Lee, 1974) was computed on the basis of a transcription of this sample. Subjects were assigned to one of the three diagnostic subgroups on the basis of these DSS scores (See Table 2) at each of the three follow-up evaluations.

A narrative sample was also gathered at each of the follow-up assessments. In kindergarten and second grade, a wordless picture book was used as a stimulus for the story. Westby's (1989) suggestions for eliciting a narrative sample were followed in this study. The examiner was seated across from the subject and the child was handed a copy of *A Boy, A Dog, and A Frog*, by Mercer Mayer (1967), and told, "I want you to tell me the story in this book. I can't see the pictures so make sure to tell the story so that I will understand it. Make it the kind of story we would read in a book."

In first grade, all subjects were given The Bus Story Language Test (Renfrew, 1991), a retelling task in which the

**TABLE 2. Subject descriptions at three follow-up evaluations.**

Evaluation point	n <sup>1</sup>	Mean age <sup>2</sup>	Mean SES <sup>2,3</sup>	Mean DSS <sup>2</sup>
Kindergarten				
NL	25 (68)	71.2 (3.0)	3.4 (1.1)	7.96 (1.3)
HELD	17 (76)	70.7 (1.5)	3.5 (0.9)	8.05 (1.4)
ELD	10 (80)	72.5 (2.2)	3.6 (0.7)	5.45 (2.0)
Grade 1				
NL	24 (67)	84.8 (2.7)	3.4 (1.1)	8.04 (1.3)
HELD	22 (73)	82.8 (3.0)	3.56 (0.74)	7.65 (1.0)
ELD	8 (75)	84.1 (2.6)	3.6 (0.9)	4.85 (2.1)
Grade 2				
NL	26 (62)	96.9 (2.3)	3.4 (1.1)	10.57 (1.91)
HELD	24 (79)	96.1 (3.0)	3.6 (0.8)	10.26 (1.27)
ELD	4 (50)	95.8 (1.5)	3.0 (0.0)	7.10 (0.39)

Note. NL = Normal Language, HELD = History of Expressive Language Delay, ELD = Chronic Expressive Language Delay.

<sup>1</sup>the percentage of males in each group is given in parentheses. <sup>2</sup>Standard Deviations are given in parentheses. <sup>3</sup>Using Hollingshead's (1975) four factor scale of social position, on a scale from 1 to 5, based on Myers & Bean (1968).

children are told a story about a "naughty bus," which forms the basis of the narrative analyses. Following Renfrew's procedures, a series of 12 pictures was shown to the child as the examiner told the story. The script for the bus story is read to the child by the examiner. Immediately after hearing it, the subjects were asked to look at the pictures again and tell the story back to the examiner.

It was decided to use two different story stimuli for several reasons. First, the Bus Story had been chosen to evaluate narrative skills in the children at age 4 because of its norm-referenced data and standardized presentation format. We wanted to get a second glimpse of the children's narrative skills using the same measure. However, we worried that if we used the same story 4 years in a row, the children would remember it and that might affect their performance or decrease their motivation. For this reason, it was decided to alternate two different narrative stimuli, so that 2 years intervened between the children's exposures to each one. Westby's procedure for using a wordless picture book task seemed to offer an alternative procedure that was similar to the Bus Story in providing some structure for the child's narrative, but different and appealing enough to motivate the children.

All narrations from each of the three follow-up evaluations were recorded on audiotape, transcribed, and entered into the SALT computer program (Miller and Chapman, 1988).

### **Narrative Sample Scoring Procedures**

**MLU per T-unit.** When the narratives were entered into the SALT program, they were divided into T-units, rather than utterances. A T-unit is defined by Scott (1988) as "a main clause and all subordinate or nonclausal structures attached to or embedded within. All main clauses that begin with coordinating conjunctions *and*, *but*, [*and*] or indicate a new T-unit unless there is a coreferential subject

deletion in the second clause" (p. 55). The SALT program automatically calculated the *MLU per T-unit*. It represents a measure of syntactic complexity of the narrative sample.

**Information score.** The Bus Story test provides a norm-referenced Information score that serves as a measure of semantic complexity of the narrative sample. This score indicates the number of relevant pieces of information the child included in the story, out of a possible total of 54, following Renfrew's criteria. Two points are given for each item that Renfrew designates as "essential" and one point for each item she designates "subsidiary." The total number of points each subject earns on this analysis is the Information score.

As a measure of semantic complexity in the wordless picture book task, an Information score, analogous to that provided in the Bus Story, was developed. Three judges independently counted the number of pieces of Information contained in the story. Their lists were combined, and the three judges examined the pooled list to arrive at a consensus on the information units. There were 26 pieces of information scored for this analysis. One point was given for each point of information included in the subjects' story generated from the wordless picture book. The total number of pieces of information out of these 26 was used as the Information score for the wordless picture book narration task.

**Cohesive adequacy.** Each subject's narration was coded for cohesion using Liles' (1985) criteria for identifying cohesive markers and judging cohesive adequacy. Each cohesive element in a narrative was identified, following Liles' procedures. A judgment of cohesive adequacy was then made for each marker. The cohesive elements were judged as complete, incomplete, or erroneous. Complete ties were those that referred to information outside the T-unit with unambiguous and easily found referents. Incomplete ties were those that required information outside the T-unit, but

the information was not present elsewhere in the text. Erroneous ties were those that referred to information in an ambiguous fashion. The total number of cohesive markers in each narrative was computed. The percentage of complete cohesive elements used in a narrative was determined by dividing the number of complete ties by the total number of cohesive markers identified. This was considered the *Cohesive Adequacy* score.

**Lexical diversity.** A modification of the SALT program developed by Nockerts was used to count the number of words used in each narrative that do not appear on the Wepman-Hass (1969) list of 500 words most commonly used by 6-year-olds. This score was used as a measure of lexical diversity.

**Narrative Stage assignment.** Applebee (1978) identified a sequence of narrative development between the ages of 2 and 6 years. Klecan-Aker and Kelty (1990) adapted this system, adding criteria from Stein and Glenn's (1979) story grammar system, for analyzing narrative samples from children with language delays. A modification of Klecan-Aker and Kelty's system, which combines Applebee's Focused Chain and Unfocused Chain level into one level (Chain) in order to achieve better reliability, was used to assign Narrative Stage score in this study. The Narrative Stage score assigns a rank from 1 to 5, based on criteria given in Table 3, to each subject's narrative. The Narrative Stage score serves as an index of the overall maturity of the macrostructure of the child's storytelling ability.

### Reliability

Ten percent of the spontaneous speech samples from each of the 3 years were randomly selected and transcribed independently by two trained graduate students who were working as research assistants on the PLDP. A point-to-point percentage of agreement score (McReynolds & Kearns, 1983) was computed for the number of words agreed upon in the transcriptions. The average percentage of agreement on the transcriptions was 92.6%. Reliability of the DSS scoring on the spontaneous speech samples was computed by having two trained graduate students independently derive a DSS score for another randomly chosen 10% of the spontaneous speech transcripts. Point-to-point reliability of assignment of DSS points was 92.3%.

Two trained graduate students independently rescored 15% of the narrative samples to determine reliability of the narrative analysis procedures. Interrater reliability on the Information score was 93.0%. The Cohesive Adequacy scoring reliability was 94.0%. Reliability for the narrative stage assignments, the most global and subjective of the measures used, was 84.7%. The lexical diversity and MLU per T-unit measures were machine scored, so reliability measures were not considered necessary.

## Results

For each of the three follow-up assessments, the results on four of the variables studied (Information score, MLU per T-unit, Lexical Diversity, and Cohesive Adequacy) were

TABLE 3. Narrative stage scoring system.

Stage	Score	Description
Heap	1	Stories where children are labeling and/or describing events or actions. There is no central theme.
Sequence	2	Labeling or describing events about a central theme.
Primitive narrative	3	Contains the three strong story grammar components of initiating event, attempt or action, and consequences around a central theme.
Chain	4	Four story grammar components, three of which are initiating event, attempt or action, and consequence. There may be an ending, but it is abrupt.
True narrative	5	Contains at least five story grammar elements, three of which are initiating event, attempt or action, and consequence. The ending indicates a resolution of the problem.

subjected to a one-way ANOVA. Pair-wise differences were examined with Tukey tests. Because of the ordinal nature of the Narrative Stage score, a Kruskal Wallis nonparametric ANOVA was used to examine group differences on this measure. The Mann-Whitney U-test was used as a nonparametric analog of the Tukey tests.

### Kindergarten

Table 4 presents results of the narrative analyses for the year the subjects were in kindergarten. Approximately two thirds of the children originally identified as SELD had moved within the normal range (above the 10th percentile on DSS) of expressive language by kindergarten (the HELD group). There were significant differences among the three groups ( $p < .05$ ) on Lexical Diversity,  $F(1, 52) = 5.70$ ; Cohesive Adequacy,  $F(1, 52) = 3.68$ ; and Narrative Stage,  $H = 6.70$ , at the kindergarten assessment. The NL group scored significantly higher than both the HELD and ELD groups on Lexical Diversity. The HELD and ELD groups were not significantly different on this measure. Children with NL scored significantly higher than those with ELD on Cohesive Adequacy, but the children with HELD were not significantly different from either of the other two groups. The children with NL scored significantly higher than both those with HELD and with ELD on the narrative stage measure, but the children with HELD and ELD were not significantly different. As indicated in Table 4, there were no other significant differences.

### First Grade

Table 5 presents the results of the narrative assessments in first grade. There it is shown that 73% of the children

**TABLE 4. Mean (and standard deviation) narrative scores and comparisons for three groups: Kindergarten.**

Variable	NL [ <i>n</i> = 25]	HELD [ <i>n</i> = 17; 63% <sup>1</sup> ]	ELD [ <i>n</i> = 10; 37% <sup>1</sup> ]
Information score	11.9 (3.2)	11.4 (3.1)	9.1 (4.7)
MLU per T-unit	7.2 (1.0)	6.9 (1.3)	6.6 (1.2)
Lexical diversity <sup>2</sup>	15.5 <sup>a</sup> (6.1)	11.0 <sup>b</sup> (3.5)	10.3 (4.6) <sup>b</sup>
Cohesive adequacy <sup>2</sup> (% complete ties)	84.7 <sup>a</sup> (16.6)	76.7 <sup>a,b</sup> (23.4)	62.1 <sup>b</sup> (31.7)
Narrative stage <sup>2</sup>	4.1 <sup>a</sup> (0.8)	3.8 <sup>b</sup> (0.7)	3.1 <sup>b</sup> (1.2)

Note. NL = Normal Language, HELD = History of Expressive Language Delay, ELD = Chronic Expressive Language Delay.

<sup>1</sup>percentage of original SELD subjects who were placed in this subgroup

<sup>2</sup>groups are significantly different at  $p < .05$ . Groups with differing superscripts were significantly different on post-hoc pair-wise comparisons. Those with the same superscripts were not.

originally identified as SELD had moved within the normal range (above the tenth percentile on DSS) of expressive language by first grade. At this time, the only significant difference in narrative performance among the groups was on Narrative Stage assignment ( $H = 16.17$ ). The Mann-Whitney U test revealed that children in the NL group again scored significantly higher than both the HELD and ELD groups. Children with HELD and ELD were not significantly different from each other on this measure.

## Second Grade

Table 6 presents the results of the narrative assessments in second grade. It can be seen that 86% of the children originally identified as SELD had moved within the normal range (above the 10th percentile on DSS) of expressive language by second grade. There were no significant differences among groups on any of the narrative measures by second grade.

## Discussion

These data suggest that deficits in narrative skills tend to disappear in children with a history of SELD. However, the resolution of these deficits is slower than the resolution of syntactic skills measured by DSS. The pattern seen in the resolution of narrative deficits follows, at a slower pace, than that seen for the development of expressive syntax in this

population (Paul, 1993; Paul & Riback, 1993). Specifically, at earlier ages, deficits in children with a history of SELD are broad, affecting many aspects of performance (as Paul & Smith [1993] showed for narrative skills in late talkers at age 4). As children with SELD mature, deficits contract, affecting narrower areas of performance, such as verb marking in syntax (Paul & Riback, 1993) and narrative macrostructure (as indexed by Narrative Stage) in this study.

Another parallel between syntactic and narrative development is seen in the comparison of the performance of the ELD and HELD groups. Children in the HELD group have moved within the normal range of expressive syntax in spontaneous speech. Still, they continued to score significantly lower than peers with normal language histories in the breadth of their vocabularies (Lexical Diversity) and in the maturity of their narrative macrostructures (Narrative Stage) in kindergarten. Moreover, they were not significantly better than children with persistent ELD on these measures. By first grade, however, they were performing more poorly than peers with NL only in terms of narrative macrostructure. They were still no better than children with chronic ELD on this measure. By second grade, there are no differences among any of the groups on narrative performance.

These findings, again, parallel the acquisition of syntax (Paul & Riback, 1993). At age 3, children who continued to show overall deficits in DSS (as indexed by scores below the 10th percentile) earned significantly fewer DSS points in each of the eight DSS categories than age-mates with NL.

**TABLE 5. Mean (and standard deviation) narrative scores for three groups: Grade 1.**

Variable	NL [ <i>n</i> = 24]	HELD [ <i>n</i> = 22; 73% <sup>1</sup> ]	ELD [ <i>n</i> = 8; 27% <sup>1</sup> ]
Information score	28.8 (8.9)	26.0 (9.2)	22.4 (11.1)
MLU per T-unit	8.8 (1.5)	9.1 (1.7)	7.9 (2.0)
Lexical diversity	19.3 (4.4)	19.0 (5.3)	15.6 (4.6)
Cohesive adequacy	74.0 (23.8)	76.4 (19.2)	63.1 (21.9)
Narrative stage <sup>2</sup>	4.2 <sup>a</sup> (0.4)	3.8 <sup>b</sup> (0.5)	3.3 <sup>b</sup> (0.7)

Note. NL = Normal Language, HELD = History of Expressive Language Delay, ELD = Chronic Expressive Language Delay.

<sup>1</sup>percentage of original SELD subjects who were placed in this subgroup

<sup>2</sup>groups are significantly different at  $p < .05$ . Groups with differing superscripts were significantly different on post-hoc pair-wise comparisons. Those with the same superscripts were not.

**TABLE 6. Mean (and standard deviation) narrative scores for three groups: Grade 2.**

Variable	NL [n = 26]	HELD [n = 24; 86% <sup>1</sup> ]	ELD [n = 4; 14% <sup>1</sup> ]
Information score	19.7 (3.4)	19.4 (2.9)	17.3 (3.0)
MLU per T-unit	8.26 (1.29)	7.89 (1.33)	6.21 (1.01)
Lexical diversity	41.2 (26.1)	32.5 (16.8)	35.8 (16.9)
Cohesive adequacy	89.1 (9.8)	87.8 (12.4)	82.3 (31.6)
Narrative stage	4.2 (0.7)	4.1 (0.6)	4.3 (0.5)

Note. NL = Normal Language, HELD = History of Expressive Language Delay, ELD = Chronic Expressive Language Delay.

<sup>1</sup>percentage of original SELD subjects who were placed in this subgroup.

Similarly, these 3-year-olds with ELD also scored significantly lower in all eight categories than those with SELD as toddlers who had "caught up" and had overall DSS scores above the 10th percentile (the HELD group). The 3-year-olds with HELD earned significantly fewer DSS points than peers with NL, but only in the areas of verb marking and elaboration. By age 4, this difference between children with NL and HELD was no longer significant. Only the children with persistent ELD at age 4 (indexed by overall DSS scores below the 10th percentile) scored significantly fewer DSS points on verb marking, which was now the only DSS category distinguishing them from children with NL and HELD.

These findings, taken together, suggest, first, that for children who appear to "grow out of" early language delay, circumscribed areas of deficit may persist for some time (to age 4 in the area of syntax, to first grade in the area of narrative). Nonetheless, the long-term prognosis for these children appears to be quite good. Recovery continues at least through the early elementary school years. Deficits in both basic syntax and higher level language skills such as narrative narrow progressively. Over the long term, these deficits appear to resolve more or less completely, at least in the areas studied so far. Moreover, research reported by Bishop and Adams (1990) and by Whitehurst and Fischel (1994) suggests that these children perform within the normal range in reading and school achievement, at least in the early elementary grades.

Even for children whose expressive language deficits persist into the early school years, a similar pattern is seen at a slower pace. Again, deficits look broad at early ages and narrow later. By second grade, even higher level language skills such as narrative look very similar to those of peers with normal language history. Although these children with persistent ELD may continue to produce less mature syntax in spontaneous speech than peers with NL, they score within (though at the low end of) the normal range on standardized measures of language and school achievement (Paul, 1996). Although it is reasonable to ask whether this barely adequate performance in primary grades will be enough to keep them from falling behind as the demands of the intermediate grade curriculum intensify, the findings of this study suggest that there is reason to believe that this will not necessarily happen. The known relationship (Bishop & Edmundson, 1987; Feagans & Appelbaum, 1986) between narrative skills and academic achievement suggests that children with adequate skills in these areas have a good

chance for continued academic success. Naturally, this suggestion needs to be validated with longer-term follow-up studies that track the progress of children with a history of SELD through the intermediate and secondary grades. However, consistent with the results of other investigations, the current findings suggest that the prognosis for these children is reasonably positive.

Several caveats must be observed in interpreting these data. The number of children who remained in the ELD group is small. Thus, it may be difficult to detect differences among groups with the statistical tests used. Still, visual inspection of the data reveals that the gaps among groups do tend to narrow from year to year. For example, on the Narrative Stage measure, in kindergarten, children with NL were ranked 0.3 levels higher, on average, than those with HELD, who were ranked 0.7 levels higher than those with ELD. By second grade there was an average difference of only 0.1 levels among the groups; the mean of the ELD group was slightly higher than that of the NL's and HELD's. An additional caveat concerns the nature of this cohort. All the children in this study came from middle class families and had no other medical, social, or developmental difficulties apart from their delayed expressive language. The results presented here cannot be generalized across socio-economic class or to children with delayed language who have any additional risk factors, such as dysfunctional families, history of prematurity, low birth weight, drug exposure, abuse or neglect, seizures, head trauma, chronic otitis media, known developmental disorders such as mental retardation, hearing impairment, autism, or serious emotional problems.

Another caveat concerns the nature of the narrative data. Both tasks used here involved a retelling format in which the essential structure of the story is provided by the picture stimuli. The groups might have differed on a more demanding storytelling task, such as a spontaneous story generation procedure. Again, further research is needed to resolve this issue. Similarly, the use of a single measure of syntactic performance, the DSS, to index productive language may have limited the validity of these data. Although the DSS has well-established reliability and validity, the use of a single free speech sample to assess overall productive language skill is problematic, because it is known that changing the setting, situation, and materials of the sampling context can influence performance (Bain, Olswang, & Johnson, 1992) and different analysis procedures can result in differing profiles of a child's language (Klee & Paul, 1981). Future

studies of this population might employ multiple samples and a more varied array of assessment methods of conversational speech.

The role of intervention in the outcomes reported here also needs to be investigated more systematically. Paul (1996) reported that intervention history did not appear to be the primary determiner of outcome in these children with SELD. However, the intervention experienced during the preschool period by subjects in this cohort was uniformly short-term (less than a year in duration) and low-intensity (less than 2 hours per week). Similarly, Whitehurst et al. (1991) showed that short-term effects of early intervention can be seen in toddlers with SELD. Long-term effects that extend into school age, however, have not been documented. Intervention has not been either controlled or systematically manipulated in most studies of children with SELD. There is a critical need to study the role that early intervention plays in influencing outcome in terms of both language and school achievement for children such as those included in this investigation and for children from other groups (e.g., other SES groups, cultural groups, and other disorder types).

For now, the implications of these findings bolster a "watch and see" approach to the management of SELD (Paul, 1996). This means that children with specific delays in expressive language who are from middle class families and have no other risk factors should be closely monitored throughout the preschool period, but may not need direct intervention during that time (See Paul, 1996, for detailed discussion of family-centered intervention issues for this population.) The data that are accumulating about these children suggests that their path to normal language production may be slow and protracted. They may continue to show significant differences from normal speakers throughout preschool and even into the early school years, but the chances for eventual resolution of these differences appear to be quite high. Careful monitoring throughout the preschool period is warranted to ensure that deficits remain confined to expressive language and that significant progress in speech and language development is seen by kindergarten age. The present data, though, taken together with the other research on late talkers cited here, appears at this time to bode well for the long-term prognosis of SELD.

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