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*“Second Opinion” presents the viewpoints of experts on an area of clinical significance and allows them to respond to one another.*

# Clinical Implications of the Natural History of Slow Expressive Language Development

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*Paul*

One of the most puzzling problems confronting speech-language pathologists is the child who, at age 2, appears normal in every way, but fails to begin talking. We've known for some time that children with learning disabilities frequently have histories of slow language growth (Catts & Kamhi, 1986; Maxwell & Wallach, 1984; Roth & Spekman, 1989; Weiner, 1985). We've also known that older preschoolers, with delayed language after age 4 or 5, tend to have chronic deficits (Aram, Ekelman, & Nation, 1984; Aram & Nation, 1980; Garvey & Gordon, 1973; Griffiths, 1969; Hall & Tomblin, 1978; King, Jones, & Lasky, 1982; Paul, Cohen, & Caparulo, 1983; Tallal, 1988). Despite the fact that children in these studies appear to function within the normal range on nonverbal cognitive and related measures during the preschool years and evidence deficits only in language skills, retrospective studies have shown that their prognosis in adolescence, in terms of IQ, academic achievement, and social competence, is guarded (Eisenson, 1972; Paul & Cohen, 1984; Paul, Cohen, & Caparulo, 1983). It is reasonable to predict, then, that a child in the late preschool period (4–6 years of age) with a specific disorder of language development is at high risk for continued difficulty in language and school achievement.

Until recently, though, we have had little data on which to base prognostic statements for children who appear to be normal in every way, except for the development of language, at earlier ages. Yet the condition of circumscribed language delay in very young children is relatively common. Rescorla (1989) reported that 10–15% of middle-class toddlers failed to produce more than 50 words or use two-word combinations, the standard language milestone, at 24 months of age. Parents are often concerned about these children's limited language skills, and may seek help and advice from clinicians. In this report, I will outline what has been learned in the past 5 years about these “late talking” children, and discuss what these findings suggest to us as speech-language pathologists when we encounter them in a clinical situation.

## Recent Research on Early Expressive Vocabulary

In order to decide whether a child's language performance represents a delay in development, we need to know not only the normal milestones of development, but also the breadth of the normal range. Recent research has been helpful in clarifying this parameter. Vocabulary size in the third year of life, the variable most often used to decide whether toddlers are showing a delay in language development, has been investigated in detail. Fensen, Dale, Reznick, Hartung, & Burgess (1990) reported that average vocabulary size in normal children at 18 months of age is over 100 words, whereas the standard deviation in this measure is 111, 102% of the mean. By 24 months, average vocabulary size is over 300 words, with a standard deviation of 175, only 58% of the mean. We can see, then, that the standard deviation in vocabulary size declines sharply between 18 and 24 months. This suggests that despite large variation, a normal range of vocabulary development can be meaningfully defined by 24 months, although probably not much earlier. Children whose expressive vocabularies contain fewer than 50 words can be seen as performing significantly below the average vocabulary size for their age at 24 months.

## Recent Findings on Slow Expressive Language Development

In recent years, several research groups, including my own, have investigated the course and outcome of slow expressive language development (SELD) in toddlers (Paul, 1993; Rescorla & Schwartz, 1990; Scarborough & Dobrich, 1990; Thal, Tobias, & Morrison, 1991; Weismer, Murray-Branch, & Miller, 1994; Whitehurst, Fischel, Arnold, & Lonigan, 1992). SELD is defined in these studies as a small (usually less than 50 words) expressive vocabulary size during the second year of life. Vocabulary size is generally ascertained by parent report on one of several instruments recently developed to assess early language skills. Both the MacArthur Communication Development Inventory (CDI; Fenson et al., 1993) and the Language Development Survey (LDS; Rescorla, 1989) are parent report instruments that have been used for this purpose. Parent checklists have been shown to be valid indicators of expressive vocabulary size in toddlers (Dale, Bates, Reznick, & Morisset, 1989; Reznick & Goldsmith, 1989). Both the CDI and the LDS have been shown to have high reliability and validity, and the LDS has demonstrated both sensitivity and specificity for identifying language delay in 2-year-olds (Rescorla, 1989, 1991).

### *Profiles of Development: Toddlers*

In an issue of *Topics in Language Disorders* devoted to language development and delay in toddlers, I (Paul, 1991) identified a profile of characteristics of toddlers with SELD. These toddlers are similar to normally speaking peers in terms of their history of pre- and perinatal complications, history of middle ear involvement by parent report, nonverbal cognitive skills, and linguistic input from parents. Late-talking toddlers, though, express joint attentional communication less frequently than normally speaking peers, and produce fewer consonant types and syllable structures. They also are rated by parents as more hyperactive and showing more behavioral problems.

### *Profiles of Development: Preschool*

The recent studies that have followed toddlers with SELD through the preschool years generally report that as children with SELD get older, increasing numbers move into the normal range in terms of language skills. Expressive vocabulary size is one of the first aspects of language to resolve, even though it was the original factor that differentiated children with SELD from normally developing

peers. Rescorla (1993), Whitehurst and colleagues (1992), and I (Paul, 1993) all reported normal expressive vocabulary skills in children with a history of SELD by age 3.

Phonological deficits persist longer. My research (Paul, 1993) showed that 35% of children with SELD scored below the normal range on an articulation test at age 4. By 5, this cohort scored within the normal range in articulatory performance, although they tended to fall at the low end of the range. Whitehurst, Smith, Fischel, Arnold, & Lonigan (1991) reported similar findings, with 35% of children with SELD scoring below average on articulation at 3 years 6 months, and 22% falling below the normal range at 5 years 6 months.

Another area in which deficits have been found to persist in children with SELD is syntactic production. Table 1 reports the findings of several studies on this dimension. Although each study used a different measure, resulting in differing proportions of children who fell within the normal range at each age, the general trend is for children with SELD to move steadily into the normal range of syntactic production throughout the preschool period, with relatively constant rates of improvement.

I have also reported patterns of outcome in speech and language during the preschool years (Paul, 1993). As we see in Table 1, there is significant movement into the normal range in children with a history of SELD during the preschool period. By age 4, a substantial proportion of these children have moved within the normal range of both syntactic and phonological development. In general, the pattern of development is that children with SELD move from having deficits in both syntax and articulation at age 3 to having deficits in only one or the other area at 4. There is also an increase in the proportion of children with

**TABLE 1. Percentage of children with SELD who scored within the normal range of expressive language during the preschool period.**

Study	Age	
	3 Years	4 Years
Paul (1991; 1993)	41 <sup>a</sup>	57 <sup>a</sup>
Whitehurst & Fischel (1994)	74 <sup>b</sup>	86 <sup>b</sup>
Rescorla (1993)	21 <sup>c</sup>	44 <sup>c</sup>

<sup>a</sup>using Developmental Sentence Score (Lee, 1974)

<sup>b</sup>using the Verbal Expression subtest of the Illinois Test of Psycholinguistic Abilities (Kirk, McCarthy, & Kirk, 1968)

<sup>c</sup>using the Index of Productive Syntax (Scarborough, 1990)

SELD who have no deficits between the ages of 3 and 4 years.

During the past several years, I have been following my cohort of children with slow expressive language development and a control group of peers with normal language history, into the school years. In this report, I will present data on early school-age outcomes of SELD, and talk about what they might mean for clinical decision-making for young children who present as late talkers.

## Method

### Subjects

In this paper, I will report on 31 children with SELD who have been involved in my research, the Portland Language Development Project (PLDP), from the time they were 20–34 months of age, along with a control group of 27 normally speaking age mates. All passed hearing screening at 20 dB, scored above 85 on the Bayley Scales of Infant Development (Bayley, 1969) (with no significant difference in scores on nonverbal items), and passed observational screening for autism and neuro-

logical disorders. The groups were not significantly different in terms of birth order, socioeconomic status, sex ratio, or racial composition. I provided detailed descriptions of the subjects in the PLDP, and their profiles of language and related skills as toddlers, in Paul (1991).

### Procedures

The subjects in the PLDP were seen for reevaluation of language and related skills when they were in kindergarten, and again in first grade. The measures collected at the kindergarten and first grade visits appear in Table 2.

*Speech Sample Collection.* At both the kindergarten and first grade visits, 10-minute speech samples were collected during an unstructured play interaction between the child and a parent in a clinic room, while the dyad played with a large set of Colorforms. Speech samples were audio-recorded, using a Sony BMX 80 transcribing tape recorder.

*Narrative Sample Collection.* At the kindergarten visit, my graduate research

**TABLE 2. Follow-up assessment instruments—early school age.**

Area Assessed	Instrument	Reference
<b>Kindergarten</b>		
Receptive language	Test of Language Development-Primary (TOLD-P)	Newcomer & Hammill (1988).
Expressive language	TOLD-P	Newcomer & Hammill (1988).
Word articulation	TOLD-P	Newcomer & Hammill (1988).
Syntax and morphology in spontaneous speech	Developmental Sentence Score from audiotaped speech sample	Lee (1974).
Intelligibility in spontaneous speech	Percent Consonants Correct in Spontaneous Speech	Shriberg & Kwiatkowski (1982).
Narrative ability	Story told from wordless picture book	Westby (1989).
Adaptive behavior	Vineland Adaptive Behavior Scales	Sparrow, Balla, & Cicchetti (1984).
Developmental level	McCarthy Scales of Children's Abilities	McCarthy (1972).
Academic readiness	Developmental Skills Checklist	CTB/McGraw Hill (1990).
<b>First Grade</b>		
Receptive language	TOLD-P	Newcomer & Hammill (1988).
Expressive language	TOLD-P	Newcomer & Hammill (1988).
Word articulation	TOLD-P	Newcomer & Hammill (1988).
Syntax and morphology in spontaneous speech	Developmental Sentence Score from audiotaped speech sample	Lee (1974).
Intelligibility in spontaneous speech	Percent Consonants Correct in Spontaneous Speech	Shriberg & Kwiatkowski (1982).
Narrative ability	Picture Story Language Test-Second Ed.	Renfrew (1991).
Adaptive behavior	Vineland Adaptive Behavior Scales	Sparrow, Balla, & Cicchetti (1984).
Academic achievement	Peabody Individual Achievement Test	Dunn & Marquardt, F. (1970).

assistants and I collected narrative samples from each subject using a spontaneous story generation task with a wordless picture book as a stimulus (Westby, 1989). For this sample, children were seated across a table from the examiner (so the examiner could not see the pictures) and were given a copy of the wordless picture book, *A Boy, A Dog, and a Frog* (Mayer, 1967). They were asked to tell the examiner the story in the book, and were reminded, "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."

When the children were in first grade, we again collected narrative samples, this time using a standardized story retelling task, the Bus Story Language Test (Renfrew, 1991). We showed the children a series of pictures from a picture book developed by Renfrew, and read them the script of a story provided in the test manual about the pictures. We then asked the children to retell the story back to the examiner, while looking again at the series of pictures (see Paul and Smith, 1993, for details). Narrative samples from both years were audio-recorded, and transcribed in orthographic transcription in their entirety.

*Standardized Achievement Testing.* At both the kindergarten and first grade visits, we administered the Test of Language Development-Primary (Newcomer & Hammill, 1988) to all the children in the PLDP, in order to assess oral language abilities. At the kindergarten visit, we gave the children the Prereading Battery of the Developmental Skills Checklist (CTB/McGraw Hill, 1990), a nationally standardized measure of school readiness. The McCarthy Scales of Children's Abilities (McCarthy, 1972) was also administered in kindergarten as a measure of cognitive function. In first grade, the Peabody Individual Achievement Test (Dunn & Marquardt, 1970) was given in order to assess reading achievement levels.

### **Data Analysis**

*Data Coding.* We derived the following measures from the speech and narrative samples collected:

1. **Developmental Sentence Score:** Graduate student research assistants, who had observed and made contextual notes during the interaction from which the speech samples were drawn, orthographically transcribed the conversational samples. Developmental Sentence Scores (DSS) were assigned to each speech sample, following Lee's (1974) procedures. The first 50 unique noun-verb utterances in the speech sample were used for computing DSS scores. Scores were

compared to the subject's current chronological age. For each sample at each age, subjects' scores were assigned to one of two categories, using data from Lee (1974): at or above the 10th percentile for age; i.e., within the normal range; or below the 10th percentile for age; i.e., below the normal range.

These assignments were used to place children with SELD into one of two subgroups: those with a history (Hx) of slow expressive language development who were currently functioning within the normal range in terms of DSS score; and those with chronic expressive language delay (ELD), who were slow in language development as toddlers and were still demonstrating DSS scores below the normal range in kindergarten or first grade. All the children with normal language histories (NL) who participated in the follow-up study scored above the tenth percentile on the DSS.

We obtained reliability measures for assigning DSS scores by having a second researcher independently re-analyze 10% of the transcripts and assign a DSS. For interrater reliability for this measure, we used a point-to-point method (McReynolds & Kearns, 1983) by counting the number of utterances for which the two raters assigned the same number of DSS points in each sample and dividing that number by the total number of utterances in the sample. This percentage was then averaged across the samples used in the reliability study. Reliability calculated using this method was 92% in kindergarten and 93% in first grade.

2. **Intelligibility rating in free speech:** At the end of the collection of each 10-minute speech sample, the graduate student collecting it made a subjective judgment as to the intelligibility of the speech sample observed, on a three-point scale (1 = good, 2 = fair, 3 = poor). Gordon-Brannan (1994) reported that rating scales such as this are frequently used in assessing speech intelligibility, and that these ratings correlate more highly than other forms of intelligibility assessment with objective measures of the proportion of intelligible words in speech samples. Shriberg and Kwiatkowski (1982) showed high reliability among clinicians in assigning these ratings. We established reliability for the PLDP cohort by having a second graduate research assistant sit in on 10% of the speech sample collection sessions and independently assign a rating to these samples. Interrater reliability was 86% in kindergarten and 100% in first grade.

3. **Percent Consonants Correct (PCC):** Shriberg and Kwiatkowski (1982) proposed the PCC as a more quantitative measure of speech intelligibility than subjective ratings. Their method for computing PCC was followed in

arriving at PCC values for the speech samples in this study. The middle 100 words in each speech sample were used, and phonemic transcriptions for each consonant produced by the children were derived from the audiotaped speech samples. Target words were identified by comparing the phonemic transcriptions to the orthographic transcriptions made previously for the DSS analysis. PCC was derived by counting the number of correct consonants (relative to the target consonants in words in the orthographic transcriptions) and dividing by the number of correct plus number of incorrect (relative to the target consonants in words in the orthographic transcriptions) consonants in the 100-word sample. We established reliability by having a second rater listen independently to an audiotape of 10% of the speech samples and compute PCC as I just described. Interrater reliability was 96% in kindergarten and 98% in first grade.

#### 4. Narrative Measures:

(a) Narrative stage. A stage of narrative development was assigned to each story the children produced each year, on a scale from 1 to 5 (with 5 being the highest), using a modification developed by Klecan-Aker and Kelty (1990) of Applebee's (1978) narrative stage analysis system. Applebee identified six stages of narrative development: heaps, sequences, primitive narratives, unfocused chains, focused chains, and true narratives. These stages have

**TABLE 3. Klecan-Aker & Kelty's (1990) adaptation of Applebee's (1978) system for scoring narrative maturity.**

Stage	Description <sup>a</sup>
1. Heap	Stories where children are labeling and/or describing events or actions. There is no central theme.
2. Sequence	Labeling or describing events about a central theme.
3. Primitive narrative	Contains the three strong story grammar components of (a) initiating event, (b) attempt or action, and (c) consequences around a central theme.
4. Chain	Four story grammar components, three of which are initiating event, attempt or action, and consequence. There may be an ending, but it is abrupt.
5. True narrative	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.

<sup>a</sup>See appendix for examples of narratives at each of these stages.

been operationalized by Klecan-Aker and Kelty (1990), whose system is shown in Table 3. For this study, the focused and unfocused chain categories were combined, in order to improve scoring reliability. So we assigned narratives to one of five stages of development: heaps, sequences, primitive narrative, chains, or true narratives. Examples of stories assigned to each of these levels appear in the appendix. We demonstrated reliability by having a second researcher independently read a transcript of 20% of the narrations and assign a narrative stage score. Interrater reliability was 91% in kindergarten and 83% in first grade.

(b) Information score. Renfrew (1991) presented instructions and norms for computing an information score on the basis of performance on the *Bus Story*. This information score is the number of units of information given in the experimenter's narration of the story that the child mentions in the retelling. It is used as a measure of the semantic complexity of the child's version. Renfrew provided norm-referenced information for British children on this measure. The mean number of information units included in stories of 6-1/2-year-olds in her sample was 28 (middle 50% range = 25–34); the cutoff for the bottom tenth percentile was 20 units.

For the kindergarten narrations from the wordless picture book, we developed an information score analogous to Renfrew's for the *Bus Story*. Three judges independently listed the informational units depicted in the illustrations that constituted the story. Those agreed on by all three judges were selected as the essential informational units in the story. We examined each child's narration for the appearance of these 26 informational units. The number of the units present in each narration was counted to produce an information score for each child's narration of the story from the wordless picture book. We determined reliability for this measure by having a second researcher independently read transcripts of 10% of the narrations and assign an information score to each. Interrater reliability was 95% in both kindergarten and first grade.

(c) Statistical Analyses. The scores on each of these measures for each year were subjected to analysis of variance to find out whether there were differences among the three groups (normal language history [NL], history of expressive language delay [Hx], and chronic expressive language delay [ELD]). If ANOVA results were significant, Tukey HSD Tests were used as post-hoc comparisons to determine which pair-wise differences were significant. Since the narrative stage measures were ordinal data and not normally distributed, a

nonparametric analog to the analysis of variance, the Kruskal-Wallis one-way ANOVA, was used to assess differences, with Mann-Whitney U tests used as a post-hoc procedure.

## Results

### School-Age Outcomes

Table 4 gives the average scores on each of the measures collected for the Normal Language (NL) group and for the two SELD subgroups (Hx and ELD) in kindergarten. Table 5 does the same for the three groups when they were in first grade.

*Kindergarten.* Table 4 shows that 74% of children with a history of SELD scored within the normal range (above the 10th percentile) on the DSS, indicating essentially normal expressive language skills by the time they were in kindergarten. In comparing the three diagnostic groups, we can see that they did not differ in terms of nonverbal cognitive skill, as measured by the McCarthy Scales of Children's Abilities (McCarthy, 1972), in kindergarten, as they had not as toddlers. The NL and Hx groups, however, scored significantly higher than the ELD group on the verbal portion of the McCarthy, reflecting the continued verbal deficits of the children with ELD. The children with ELD did score within the normal range on this measure, though.

We can see the same pattern in scores on the Test of Language Development-Primary (Newcomer & Hammill, 1988). There again both NL and Hx groups scored significantly higher than the ELDs, though the ELDs' mean

score was at the low end of normal range.

There is a similar pattern in school readiness scores on the Developmental Skills Checklist. Children with ELD scored within the low end of the normal range, and on this measure there were no significant differences between groups, due to the large amount of variation in scores in the NL and Hx groups.

By kindergarten, all three groups scored above 90% correct in their Percent Consonants Correct in a sample of spontaneous speech (Shriberg & Kwiatkowski, 1982). Even the small difference in PCC among the groups does not reach statistical significance for the ELD group, although it is doubtful that the difference is clinically significant in terms of articulatory ability. Subjective ratings of intelligibility in free speech averaged in the "good" range for all three groups, although the children in the ELD group were significantly more likely to receive a rating of "fair" than were members of the other two groups. Still, speech of all the children in the sample was intelligible by this measure.

Narrative stage scores assigned to the wordless picture book narratives were significantly different among the three groups. Both groups with a history of SELD (Hx and ELD) were ranked significantly lower than the normal group on this measure and not different from each other. Both Hx and ELD groups received average ratings of narrative maturity within the third (primitive narrative) stage of development (out of five), whereas the NL group's average was within the fourth stage (chain). Information scores on the wordless picture book narration task also were significantly different among the three groups. Here, the children in both the NL

**TABLE 4. Mean (and standard deviation) kindergarten scores in three groups.**

Measures	Diagnostic Group		
	Normal Language ( <i>n</i> = 27)	History of Expressive Language Delay ( <i>n</i> = 23; 74%)	Expressive Language Delay ( <i>n</i> = 8; 26%)
DSS <sup>a</sup>	7.0 (1.2) <sup>1</sup>	7.9 (1.3) <sup>1</sup>	5.6 (0.7) <sup>2</sup>
McCarthy Verbal T-Score <sup>a</sup>	60.5 (8.3) <sup>1</sup>	56.7 (10.7) <sup>1,2</sup>	48.0 (8.2) <sup>2</sup>
McCarthy Nonverbal T-Score	59.8 (8.8)	54.6 (11.6)	51.4 (12.2)
TOLD-P Expressive Language Quotient <sup>a</sup>	103.0 (11.0) <sup>1</sup>	94.9 (12.1) <sup>1</sup>	87.2 (8.6) <sup>2</sup>
Developmental Skills Checklist Prereading Standard Score (DSC)	97.8 (12.5)	91.2 (13.4)	86.6 (9.4)
Percent Consonants Correct <sup>a</sup>	98.6 (2.1) <sup>1</sup>	97.2 (3.4) <sup>1</sup>	94.2 (3.9) <sup>2</sup>
Intelligibility Rating in Free Speech <sup>a, b</sup>	1.1 (0.3) <sup>1</sup>	1.3 (0.6) <sup>1</sup>	1.9 (0.6) <sup>2</sup>
Narrative Stage <sup>a</sup>	4.1 (0.8) <sup>1</sup>	3.8 (0.7) <sup>2</sup>	3.1 (1.2) <sup>2</sup>
Narrative Information Score <sup>a</sup>	11.8 (3.3) <sup>1</sup>	11.7 (3.1) <sup>1</sup>	7.5 (4.1) <sup>2</sup>

<sup>a</sup>Significant difference among groups at  $p < .05$ ; groups with differing superscripts differed on Tukey HSD post-hoc comparisons, those with the same superscripts did not.

<sup>b</sup>Intelligibility was rated subjectively on a three-point scale: 1 = good, 2 = fair, 3 = poor.

and Hx groups scored significantly higher than those with ELD.

*First Grade.* Table 5 shows, first of all, that if children had not moved into the normal range on DSS score by kindergarten, there was little chance of their doing so by first grade. Although rates of recovery are relatively high during the preschool period (Paul, 1993), if deficits persist to kindergarten, there appears to be less chance of significant change over the next year.

In scores on the TOLD-P in first grade, there is a pattern of performance similar to what we saw in kindergarten. The group with NL scored significantly higher than both the children with Hx and those with ELD; and those with Hx scored significantly higher than those with ELD, who scored within, but at the low end, of the normal range.

On ratings of intelligibility in free speech, there was again a statistically significant difference, which may not have clinical significance for articulatory ability. Ratings of intelligibility for all groups averaged in the “good” range, although individuals with ELD were more likely than those in other groups to receive a rating of “fair.” There was no significant difference among the groups’ PCC ratings.

Reading Recognition standard scores on the Peabody Individual Achievement Test (Dunn & Marquardt, 1970), which measures decoding ability, showed no significant differences among the groups, with all averaging within the normal range. On Reading Comprehension, there were no significant differences in standard scores among the three groups. However, these results may have been skewed by the fact that the Reading Comprehension

test can, according to the test manual, only be given to subjects who scored above a raw score of 18 on Reading Recognition. There were some children in each of the three groups who did not achieve this score, and so there were missing data points on the Reading Comprehension measure (25% in the ELD group; 30% in the Hx group; 17% in the NL group). In order to evaluate this effect, a Fisher’s Exact Test was run to determine if the proportion of subjects with no score in Reading Comprehension differed among the three groups. This test failed to reach significance ( $p < 0.578$ ), suggesting that there was no statistically significant difference in the proportions of subjects in each of the three groups with high enough decoding skills to allow a measure of reading comprehension to be computed.

The same small but significant difference between the NL and the other two groups on narrative stage found in kindergarten persisted in first grade, with little change in the scores for any group over the course of the year on this measure. But there was no longer a significant difference among groups on the narrative information score in first grade.

## Discussion

These findings are similar to those of Bishop and Adams (1990), Whitehurst and Fischel (1994), and Rescorla (1993) that the majority of young children with SELD move into the normal range of speech and language performance by school age. Although the sample size of the PLDP may be relatively small (31 children originally diagnosed as SELD who

**TABLE 5. Mean (and standard deviation) first grade scores in three groups.**

Measures	Diagnostic Group		
	Normal Language ( $n = 27$ )	History of Expressive Language Delay ( $n = 23$ ; 74%)	Expressive Language Delay ( $n = 8$ ; 26%)
DSS <sup>a</sup>	8.1 (1.3) <sup>1</sup>	7.7 (1.0) <sup>1</sup>	4.8 (2.1) <sup>2</sup>
TOLD-P Expressive Quotient <sup>a</sup>	108.4 (9.0) <sup>1</sup>	98.7 (10.9) <sup>2</sup>	82.6 (11.4) <sup>3</sup>
Peabody Individual Achievement Test Reading Recognition Standard Score	111.7 (16.2)	108.1 (18.6)	106.3 (9.8)
Peabody Individual Achievement Test Reading Comprehension Standard Score	105.6 (14.2)	110.1 (12.8)	103.8 (9.2)
PCC	95.7 (7.1)	92.5 (8.4)	88.6 (6.6)
Intelligibility Rating in Free Speech <sup>a,b</sup>	1.0 (0) <sup>1</sup>	1.2 (0.4) <sup>1,2</sup>	1.5 (0.5) <sup>2</sup>
Narrative Stage <sup>a</sup>	4.2 (0.4) <sup>1</sup>	3.8 (0.5) <sup>2</sup>	3.3 (0.7) <sup>2</sup>
Narrative Information Score	29.1 (9.0)	26.3 (9.1)	22.3 (11.1)

<sup>a</sup>Significant difference among groups at  $p < .05$ ; groups with differing superscripts differed on Tukey HSD post-hoc comparisons, those with the same superscripts did not.

<sup>b</sup>Intelligibility was rated subjectively on a three-point scale: 1 = good, 2 = fair, 3 = poor.



remained in the study through first grade), when combined with the samples of other studies that report strikingly similar findings (see Bishop and Adams [1990; 69 children who had specific language delays at age 3-1/2 to 4], Rescorla [1993;  $n = 33$ ], and Whitehurst et al. [1991;  $n = 27$ ]), the number of subjects being discussed becomes quite respectable.

Whitehurst and Fischel (1994), in summarizing the work of researchers studying this area, concluded that SELD in toddlers is a risk factor rather than a *bona fide* disorder, since the majority of affected children will go on to have language skills broadly within the normal range by school age. Our data on standardized tests of language development support this conclusion.

There are some clues, though, that children with a history of SELD retain some weaknesses in oral language ability even when they score within the normal range on standardized tests. The data on narrative development, for example, showed that children in both the Hx and the chronic ELD groups produced less mature narrative macrostructures than peers with NL in kindergarten. Children in the ELD group in kindergarten also produced narratives that were significantly less semantically complex than those of children with Hx and NL at this age. In first grade, the normal group continued to score significantly higher than either the Hx or ELD group on narrative stage, although there was no longer a significant difference on information score. Similarly, Rescorla (1993) showed that although her children with SELD also scored within the normal range on language tests by school age, they performed more poorly than peers on measures of verbal short-term memory, auditory processing of complex verbal material, word retrieval, and elaborated verbal expression.

These findings suggest that children with SELD typically move into the normal range of general language ability by school age and would not, at that time, be considered as “disabled” in terms of their linguistic skills. Still, some weak areas of language performance remain, principally in the higher level, later developing skills such as narration and encoding/decoding of complex material. Such a picture of the progress of children with SELD could be seen to exemplify Leonard’s (1991) model of specific language impairment as a “weakness” in the linguistic faculty, rather than a true pathology. In this view, children who demonstrate such a weakness in their slow start in speech as toddlers would continue to have less robust—though not subnormal—development of higher level language than their peers, even when their overall functioning had moved within the normal range. The evidence of the present study, as well as that of the other

studies on similar samples, would seem to support this view. SELD could be seen, in the majority of cases, as an indication of a linguistic weakness that results in slower development at first and less robust, elaborated development later. That is, it appears most often in early childhood as subnormal performance and in the early school years as somewhat less sophisticated, but grossly normal, language abilities. The question for us as clinicians must be, will this weakness result in significant handicap for the child, and how should this handicap be addressed?

To answer the second part of this question, it is really necessary to know the answer to the first. That is, before deciding what to do about a chronic weakness in language facility that may not be a *bona fide* pathology, it is crucial to know what aspects of the child’s functioning are hampered by this weakness. The most frequently implicated aspect is, of course, reading and academic achievement, as the literature cited in the introduction suggests. In looking at the data presented here, though, it would appear that children with a history of SELD are not, as a group, evidencing a significant handicap in reading skills in kindergarten or first grade. Admittedly, first grade is too soon to decide that a child has normal reading ability, since the demands of the curriculum for literacy skills increase dramatically with increasing grade levels (Chall, 1983). Will children like those in the Hx group manifest disorders later, when these demands become more intense?

Two studies have reported data on reading outcomes after first grade in populations similar to the one reported here (Bishop & Adams, 1990; Whitehurst & Fischel, 1994). The Bishop and Adams study showed that for children with specific language impairments as preschoolers whose oral language performance is age-appropriate by kindergarten age (analogous to the Hx group here), literacy development, as indexed by a standardized British reading test, is well within the normal range by age 8-1/2. Whitehurst and Fischel showed that for children diagnosed as SELD at age 2 who were followed to age 7, median performance in both reading and mathematics, as indexed by standardized tests obtained from school records so that a variety of different instruments were used, was above average. The overall distribution of scores in their study conformed to the normal curve. (These findings are similar to those obtained by the PIAT measure in this study.) Mathematics scores were somewhat higher than reading scores in their sample.

Another way to look at this question of handicap is to look not at group means, but at

the number of individuals whose scores would identify them as disabled. We examined the data in this way in our study in order to get a fuller picture of the handicapping effects of SELD. In kindergarten, we looked at the number of children in each of the three groups who scored below the tenth percentile on reading readiness, as measured by the DSC. We found that 13% of the children in the ELD group, 21% of those in the Hx group, and 4% of those with NL scored below this level. A Fisher's Exact Test indicated that these proportions were not significantly different ( $p < .160$ ).

In looking at the first grade data, we found that only one child (in the Hx group) fell below the tenth percentile on reading recognition on the PIAT. A Fisher's Exact Test again showed no significant difference in the proportions of children in the three groups who fell below this level ( $p < 1.00$ ). Results of the Fisher's Exact Test for the proportion of children in each group who failed to achieve a basal level of performance in Reading Comprehension were discussed earlier. The *Bus Story* Information Score, also computed for the first grade data, provides normative data, with a cutoff score of 20 representing the tenth percentile for 6-1/2-year-olds. A Fisher's Exact Test of the proportion of children in each of the three groups who earned a score below 20 on the *Bus Story* Information measure (37.5 % of the ELD group; 21.7% of the Hx group; 17.3 % of the NL group) also showed no significant difference ( $p < 0.502$ ).

These findings add weight to the conclusion that for children who score within the normal range on language testing by school age (the Hx group), school achievement in kindergarten and first grade does not differ significantly from that of children with normal language histories. This portion of the late talkers (about 74% in our data) appear to have "grown out of" their initial slow start without serious long-term consequences. Although some of these children in the Hx group did progress slowly throughout the preschool period and retained delays in language, phonology, or both up to 4 years of age, if normal syntactic skill is achieved by kindergarten, long-term consequences appear to be minimal, at least in the early school grades. Although their slightly lower narrative scores may portend some problems later on down the line, in kindergarten and first grades the children in the Hx group function at age level in reading achievement. Studies such as Bishop and Adams (1990) and Whitehurst and Fischel (1994) suggest that this situation continues to pertain, at least through second or third grade.

For those children with a history of SELD

who do not overcome syntactic deficits by school age, the present findings suggest there is less chance of doing so by first grade. Nonetheless, it is important to note that even the 26% of school age children with a history of SELD who retained deficits in expressive language show essentially normal phonological production and score within, though at the low end of, the normal range on standardized language and readiness tests in kindergarten. In first grade they do not show any significant differences from peers with stronger language skills in terms of their reading achievement. Similarly, Whitehurst and Fischel (1994) showed that second graders with a history similar to that of our cohort were not at any increased risk for reading disability, although reading was an area of underachievement for them. The reading skills required to score on grade level in first and second grade are relatively minimal, and it is possible that deficits may show up later, as the demands of the curriculum increase. Still, even children with SELD whose deficits persist to school age do appear to be able to manage at least the first few years of the school curriculum without evidence of handicap, despite the fact that their oral language skills continue to be weaker than those of peers.

Let's return to the question with which we began: Will the linguistic weakness that presents as SELD in young children result in significant educational handicap? Based on my data, and those of studies of similar children, the answer would appear to be: not in the first few grades. This finding has powerful implications for answering the second part of the question that started this discussion; that is, what should be done about SELD in very young children? Before answering this question, though, I want to examine one issue that could conceivably have an effect on the outcomes I have reported here.

*Intervention History.* Although the title of this paper refers to "natural history," implying that the development it describes was unaffected by intervention from the environment, in fact the children in my study experienced several effects that could be considered to have had an influence on the course of their development. First, by virtue of their parents' recognizing them as "late talkers" and responding to advertising requesting their participation in a research study, these children's environment may have been different in some way from that of late talkers whose parents were not observant or concerned enough to be interested in participating in research on delayed language acquisition.

Second, parents of all the children in the study, both in the normal and SELD group

alike, received counseling on language stimulation and suggestions for literacy development at intake into the study, and at each yearly follow-up visit. At each yearly follow-up, every family was given a one-page list of language stimulation activities to do at home. These included suggestions for oral language and preliterate activities such as playing rhyming games, talking about recent experiences, and using various cloze techniques during picture book readings. The suggested activities differed for each year, and were chosen to follow the normal sequence of semantic/syntactic (Lahey, 1988), metalinguistic (van Kleeck, 1984) and emergent literacy (Dickinson, Wolf, & Stotsky, 1993; van Kleeck, 1990) development.

Third, at each follow-up visit, every child who scored below the normal range of speech or expressive language development was identified to his/her parents, and an offer of referral for speech/language services was made. Three potential agencies were offered to the parents: their local educational agency's early assessment program (which provides free services), a private fee-for-service agency, and the services of the Communication Disorders Clinic at Portland State University (PSU). This clinic is ASHA accredited and is staffed by student clinicians who are supervised by faculty. It provides a sliding-scale fee system. Not all parents were interested in pursuing these referrals, again introducing a potential complication in understanding the course of these children's development. Some parents may have felt that their child was progressing adequately, despite the fact that s/he still scored below the normal range on standardized tests, and they may not have felt urgency about intervening. Others may have had other reasons for deciding not to enroll their child in an intervention program. Because the effect of intervention was not a focus of this study, these questions were not pursued systematically. However, I did keep track of how many

subjects with SELD received intervention services during their preschool years. These data are presented in Table 6.

There we can see that of the 31 children originally diagnosed as having SELD as toddlers, 34% received some form of intervention during their preschool years. As Table 6 shows, this intervention was not intensive, averaging (over all children who received intervention) 1.4 hours per week and lasting for an average of 10 months. As should not be surprising, this small amount of intervention did not make a definitive difference in outcome. Of the children who remained below the normal range at the end of the preschool period, 39% had had some preschool intervention. Of those who had moved into the normal range, 29% had had intervention. A *t*-test was run to determine whether there was a significant difference in DSS score at the end of the preschool period for all the children who had received some preschool intervention (mean [and *SD*] DSS = 5.88 [1.46]) vs. those with SELD who had not (mean [and *SD*] DSS = 5.95 [1.91]). This test failed to reach significance (*t* = .918, *p* < 0.631). Similarly, a Fisher's Exact Test to determine whether the proportion of children who scored above the tenth percentile on the DSS at the end of the preschool period was different for the group of children with SELD who had had preschool intervention versus the group that had not also failed to reach significance (*p* < 0.466).

Again, the purpose of the PLDP was not to evaluate the effects of intervention, and the content of the intervention was not monitored as part of the study. All that can be said about these data is that, first, a majority of parents who knew that their preschool children's language development continued to lag behind the normal range chose not to initiate any intervention. Second, children who continued to score below the normal range at the end of the preschool period were just as likely to have

**TABLE 6. Intervention history for subjects with SELD.**

	Percentage of All Subjects With SELD in Category	Mean (and <i>SD</i> ) DSS Score at Age 4	Mean (and <i>SD</i> ) Hours of Intervention/Week	Mean (and <i>SD</i> ) Months of Intervention
<b>Scored within normal range on DSS by end of preschool</b>				
Intervention+	14.3	7.22 (0.63)	1.2 (0.5)	9.9 (9.1)
Intervention-	34.3	7.51 (0.9)	none	none
<b>Scored below normal range on DSS by end of preschool</b>				
Intervention+	20.0	4.94 (1.05)	1.5 (.09)	10.6 (11.1)
Intervention-	31.4	4.24 (1.05)	none	none

had some intervention as those who had moved within the normal range by that time. This should not be construed to demonstrate that early intervention was not effective. As Whitehurst and colleagues (1991) showed, intervention can have short-term effects, but these effects may not persist over longer periods of time. The children who received intervention may indeed have benefited from it, but as stated earlier, the intervention did not make the ultimate difference between moving into the normal range by the end of the preschool period, and not doing so.

That this is so should not be seen as an indictment of the intervention provided. We would not refuse to provide intervention to a child with autism, or a child with cerebral palsy, simply because we knew the intervention would not result in the child's being ultimately free of disability. The purpose of much of the rehabilitation we provide is to improve current function, not to cure a disorder. My intent in discussing the intervention history data is not to make any claims about the effectiveness or noneffectiveness of the short-term, low-intensity habilitative services these children received. The nature of the PLDP data would not lend itself to any such claims, since intervention was neither systematically controlled nor manipulated, nor was it described in enough detail to allow any conclusions about its character and efficacy to be drawn.

Intervention history is mentioned at all for only two reasons. The first is to demonstrate that ethical standards were met by providing access to intervention for those families that wanted it. The second is to address the question of whether the good outcomes reported here could be attributed not to natural history—i.e., maturation and development—but to remedial services. The data presented in this discussion argue against such a conclusion on two grounds: first, the low incidence of intervention in the sample (only a little over a third of the children experienced it), and second, the lack of clear, direct association of intervention with outcome (proportions of children who received intervention in the good outcome and the chronic delay groups were not significantly different). These findings suggest that intervention cannot be seen as accounting in any large measure for the degree of recovery reported here.

*Public Policy Implications.* Let's get back to the second part of our question, about the implications of these findings. The data I have presented here have led me to take (quite reluctantly, I should say) a position similar to that of Whitehurst and Fischel (1994); that is, early intervention may not be warranted for children who present with specific expressive

language delay as toddlers. Instead, I now believe that public policy should mandate careful and consistent monitoring of these children throughout the preschool period, with mandated reevaluations every 3–6 months between the ages of 2 and 3 and every 6–12 months between the ages of 3 and 5. In the remainder of this section, I will lay out the justification for this position.

But first we must remember that the research I've discussed here, which suggests relatively small risk for serious handicaps associated with SELD, applies only to middle-class toddlers from functional families with no additional risk factors in their histories. Clearly, other kinds of 2-year-olds who are not talking, those with a history of abuse, drug/alcohol exposure, poverty, serious medical problems, trauma, seizures, hearing impairments, cognitive, or neurological deficits, would *not* be subject to the recommendations I am making here. Children with these problems were not included in any of the research I have been discussing, and the results of this research cannot be generalized to such children. The decision to provide early intervention to such children must be made on the basis of careful consideration of all the multiple risk factors to which they have been exposed.

But for the otherwise normal toddler from a functional family with a specific delay in language, chances are great (over 70% according to the PLDP data) that the oral language problem will resolve itself by the time the child reaches school age. And even if the problem does not resolve by school age, these children are able to keep up with the literacy demands of the curriculum, at least through kindergarten and first grade, and do not suffer serious academic handicaps at this point in their development. These facts, it seems to me, argue for a public policy of "watch and see" with regard to these otherwise normal children with SELD.

I want to distinguish clearly a policy of "watch and see" from one of "wait and see," which implies no action. "Watch and see," on the other hand, dictates that otherwise healthy, normal, late-talking toddlers from functional families should be systematically monitored, according to the schedule I suggested earlier (every 3–6 months between 2 and 3; every 6–12 months between 3 and 5), in order to ensure the following:

1. Language continues to be the only concern. Cognitive, behavioral, hearing, medical, emotional, and neurological development should proceed normally. Both expressive and receptive language should be carefully monitored during this period. Receptive

language should function broadly within the normal range by the time the child is 3 (Paul, 1991).

2. Significant progress is made in sentence length and complexity, intelligibility, and conversational skill. Even if the child continues to score below the normal range in these areas through the preschool period, there should be evidence of growth.
3. The child's speech can be understood by family, friends, and peers after the third birthday.

If any of these conditions is not met at any of the evaluations during the preschool period, intervention should be initiated. But as long as the problem remains confined to speech and expressive language after the age of 3, as long as the child is generally intelligible, and as long as progress is seen in these areas, the data from the PLDP and from other studies of late talkers (Bishop & Adams, 1990; Rescorla, 1993; Whitehurst & Fischel, 1994) suggest that intervention can be withheld until school age. If, by the time the child reaches kindergarten, speech and/or expressive language deficits persist, intervention should be initiated to address them in conjunction with the kindergarten program. The children with SELD described here do not appear to experience serious academic problems during kindergarten and first grade, even when their oral language deficits persist to this age. For this reason, kindergarten would appear to be soon enough to address the residual oral language deficiencies and initiate preventive intervention for literacy development in those children.

For children who appear to "grow out of" SELD by the time they reach school age (the Hx group), data from the PLDP, as well as from Whitehurst and Fischel (1994) and Bishop and Adams (1990), suggest that they will be able to keep up with the academic curriculum at least through second or third grade. For these children, the "watch and see" prescription might be renewed at school entrance. Progress in both language and academics should be closely monitored. If performance begins to slip below the normal range, intervention should be initiated rapidly, rather than waiting for the child to sink significantly below peers and experience failure before intervening.

For children like those in the ELD group who have been monitored as a result of their SELD throughout the preschool period and who score below the normal range on measures of spontaneous language production at kindergarten, intervention should be initiated immediately, again without waiting for the child to begin to fail in the academic setting. A large

body of research has clearly demonstrated that children who retain delays in language development to school age are at high risk for academic problems (Aram, Ekelman, & Nation, 1984; Aram & Nation, 1980; Garvey & Gordon, 1973; Griffiths, 1969; Hall & Tomblin, 1978; King, Jones, & Lasky, 1982; Paul, Cohen, & Caparulo, 1983; Tallal, 1988). Even though these children are not yet scoring below the normal range on measures of school readiness and achievement in our data, the known long-term risk associated with chronic language delay at school age warrants a preventive approach to intervention for this group.

If intervention is provided to children with ELD during kindergarten and primary grades, my data would suggest that its focus should be broadened beyond traditional targets. The data on narrative development suggests that this is an area where weaknesses persist, and it is one that is known to be associated with success in reading (Bishop & Edmundson, 1987). Narrative skills should, then, be an important part of the intervention program for primary school children with ELD. Similarly, the small but significant differences in phonological production suggest that this may be an area of weakness for the children with ELD. Recent studies (e.g., Bird, Bishop, & Freeman, 1995; Webster & Plante, 1992) have suggested that such weaknesses may be related to phonological processing and phonological awareness skills, which are, in turn, related to reading achievement. We could interpret these data to mean that phonological awareness should also be an important component of primary grade intervention programs for children like those with ELD described here.

*Clinical Implications.* The public policy recommendation I have just made, however logical, forces us to confront a related question, though: What if it were my child? That is, would withholding intervention be the course of action I would follow if my own child were affected with SELD? How would I answer parents who ask me what I would do if a member of my own family were experiencing a delay in language acquisition, however transitory? This is a reasonable question to ask, and one to which we owe families an answer. If it were my young child, I would want to provide some assistance *now*, even if the chances were very good that the problem would be outgrown sooner or later. I would want to do so because I believe that the intervention can be *facilitative*, in Olswang and Bain's (1991) sense. That is, I believe that providing some help to speed a learning process along, even if the help does not change the long-term outcome of a child's development, is worthwhile. I

believe it is worthwhile because I believe it can reduce frustration and increase a child's sense of mastery in the short term and may avert problems in social adjustment and self-esteem. I believe it may also bring the aspects of language that are addressed in intervention to a higher level of awareness on the child's part, and I believe that such awareness of language elements is important in the acquisition of the higher-level language skills associated with literacy. I also believe that early intervention can serve a preventive function. That is, intervention may delay or circumvent the occurrence of symptoms that develop later on. For example, intervention for narrative skill development given during the preschool period may have some preventive effects on the later development of narrative deficits that could impact on the development of reading comprehension (cf. Fey, Catts, & Larrivee, 1995).

These are *beliefs* that I hold about intervention, rather than empirically demonstrated facts. But since I hold these beliefs, I would be eager to attempt to provide these facilitative and preventive effects to a child in my family, even if the chances were good that the child would eventually move into the low end of the normal range without them.

The low end of the normal range, after all, is not the standard aspired to by many parents, particularly parents of the middle-class children I have been discussing. These families have higher expectations for their children than that, and their children are likely to need to function in settings where more than minimally adequate skills are required for full participation, even if those minimally adequate skills would not qualify the children as having exceptional educational needs.

The bottom line is this: If my young child were slow in language development, and I had the resources to provide intervention, I would do so. If my child did not qualify for public services, I would try to provide them anyway, somehow. If I could afford it, I would seek private fee-for-service intervention. If this proved beyond my financial means, I would search for lower cost alternatives, such as a university clinic or a private charitable agency that might offer services at less expense or on a sliding scale. If I were not familiar with the availability of resources such as these, I would make an effort to find out, by asking friends, checking with my physician, doing some research in the public library, and following various leads until they led to my goal. In short, I would make use of the economic and informational resources at my command to address what I perceived to be my child's need. I believe many middle-class parents, even those of modest economic means,

would find the energy to do likewise if they believed their child's welfare could be enhanced by their efforts.

Of course, not all parents would feel this way. Some—given the information that their toddler had a 70% chance of outgrowing the problem, and that if s/he didn't, kindergarten would be soon enough to provide help because the child would not be significantly educationally handicapped at that time—would be content to take their chances and watch and see, and their attitude would be eminently sensible. In fact, the majority of parents in the PLDP seem to have felt this way. This inference is supported by the fact that they did not pursue intervention for their children even though they knew the children were performing below norms and were not certain of how high the chances for good outcome by school age were. Moreover, they had been provided with access to services at a range of prices (including services at no cost whatever), and still many chose not to intervene.

But for those parents who feel more concerned about their child's short-term status, or who want to do anything in their power to improve—however marginally—their child's chances for a better-than-barely-adequate outcome, I would encourage clinicians to discuss the notions of facilitative and preventive intervention. In doing so, it is our ethical obligation to make clear that we cannot guarantee that the intervention will do anything more than assist somewhat a process that would most likely happen on its own anyway. Even so, it will be important for clinicians using this model to demonstrate effectiveness in terms of short-term growth on targeted forms and functions.

Would such counseling, and the provision of services to families who have the resources to go outside of publicly funded settings to secure them, create a two-tiered system of service delivery? Would it result in young children from families who "have" receiving help that was denied to children from families who "have-not"? I would argue that the answer to this question is "no." The reason is that, again, we need to remember for which children the public policy recommendation of "watch and see" is being made. It is addressed to children from functional middle-class families. Essentially, then, all the children affected by this recommendation are from families who "have." For these families, both the option of expending private funds for facilitative and preventive intervention, or that of expending energy to locate lower cost services available through community agencies, are viable. The decision whether to allocate these resources could be

made on the basis of each family's priorities, concerns, and beliefs.

For children from more disadvantaged backgrounds or those from families with serious problems, poverty or a dysfunctional environment would add layers of risk for long-term consequences of the early delay. When such additional risk factors are present, the calculus changes. Many writers (e.g., Crais & Roberts, 1991; Paul, 1993; Whitehurst & Fischel, 1994) advocate making early intervention decisions on the basis of accumulation of risk factors. When more risks are experienced, early intervention becomes more crucial to successful outcome, and more important for the society to provide access to, through publicly supported services.

For middle-class young children with SELD who meet the criteria discussed here, then, it would not seem discriminatory to give parents the option of providing intervention privately, since children in jeopardy because of economic and environmental factors should also get access to early intervention services, as a result of their higher level of risk. The speech-language pathologist working with these middle-class families would have the ethical responsibility to explain fully the relatively small degree of risk for serious negative consequences in delaying intervention until school age. The clinician could also discuss with these families the possible facilitative and preventive effects that intervention could have in their child's development, with the understanding that none of these effects is guaranteed, or even very easily demonstrable with empirical data at this time. The informed decision as to whether or not to provide intervention should then be left to the family, to consider in conjunction with other needs and priorities they have.

Whether these parents chose to enroll their young children in intervention or not, a public policy of "watch and see" should be in effect for all children with SELD. Such a policy would mandate a strict program of publicly funded monitoring of progress, according to a schedule like the one suggested here, throughout the preschool period. At school entrance, these children might bypass routine kindergarten screening and undergo an intensive evaluation for language and school readiness. Those with adequate skills at kindergarten age (like the Hx group reported here) would continue to be monitored closely for academic performance throughout the primary grades. Intervention would be initiated immediately when any decrements in academic achievement were identified. For children with SELD who retained deficits in language performance at

kindergarten, the school speech-language pathologist would immediately enroll the child in intervention that follows the suggestions given here. For children with more risk factors, or for children who fail to meet the criteria of improvement and intelligibility during the preschool period that were outlined earlier, the public policy I am advocating would provide access to intervention services during the preschool period.

*Conclusions.* As clinicians, we now have a good deal of information about the degree of risk associated with early language delay. When parents ask us what is likely to happen to a late-talking 2-year-old by the time s/he gets to kindergarten, we are now able to provide a relatively reliable statement of the child's chances for a good outcome, and a reassuring discussion of even the less favorable possibilities. We are now in a position to begin using the information provided by recent research to inform our deliberations about early intervention with the families and agencies we serve, and to guide us in advocating for sensible public policies with regard to these children. It is my hope that the position I have taken here will stimulate discussion that will contribute toward these ends.

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## Appendix

Examples of Narratives of *A Boy, a Dog, and a Frog* (Mayer, 1967) Assigned to Each Stage of Narrative Development (See Table 4)

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### HEAP:

Mercer went out his home.  
Then he got to the playground.  
Then he found a frog.  
Then he fell off the cliff.  
Then he dead.  
And then Mercer called the ambulance, then he took him to the hospital.  
Then he go to the...  
Then he X X X.  
Then he put his nose in his face.  
Then his blood came out.  
Then he fell down in the water.  
Then he on the police headquarters top of the tree.  
Then he X X.  
Then I fell down.  
But I have stay in bed.  
He mad at the friend Mitty.  
He "Go home sister."  
Then he fell down the water.  
Then he caught the frog.  
Then he "Blah."  
Then he got into the trap.  
It's a bad guy.  
Then he called the police.  
Then he rested.  
And then he goed in jail.  
Then that's the jail.  
And his sister is feeling sad.  
Then he found a big rock.  
Then he went home by hisself.  
Then Mercer came back.  
Then he surprise.  
Then he walk home.  
Then he eat lunch.  
Then he hungry.  
Then the frog is...  
Then his mama is mad.  
Then Mercer "Mercer."  
Then he happy.

### SEQUENCE:

X little boy.  
Tree, frog.  
Tree, person, dog, bucket, and tree that he climbing on, bucket and dog.  
They fell off.  
With a bucket X dog, person.  
Then they ran down the hill and trip down.  
Then they fell into the water and the bucket did...  
And then the bucket came onto his head.  
And then the frog was happy.  
And then the dog was swimming.  
Then there's a pail on his head.  
And then there's a leaf that the

frog jumped off.  
Then there was...  
The boy tried to catch the frog except he jumped.  
Then there was a dog happy.  
Then there's a frog sitting on the tree.  
And then the boy pointed for the dog to go.  
So they went to the tree that fall into the water where the frog is.  
And then the boy caught the dog. And he tried to catch the frog. Lookit, the dog's in the net! He thought he caught the frog. And then there was a boy yelling at the frog.  
And then the dog go.  
Then the frog was sad.  
And when the dog was happy that they're all going away.  
Then they were walking with he mad and the dog sad.  
And then he was alone.  
Then he saw footprints all the way through the house.  
Then into the closet.  
And then into the bathtub.

### PRIMITIVE NARRATIVE:

Find a frog.  
He sees a frog.  
He fell.  
And the frog hopped.  
And he caught the dog.  
Frog hopped again.  
Then he went away.  
The boy was angry.  
And the frog was pretty nervous.  
Then he followed the foot track.  
And see, they're friends.

### CHAIN:

A boy went for a walk with his dog to fetch water and catch fish.  
There was a frog.  
He caught the frog.  
The dog ate the frog.  
The boy fell in because he tripped on the dog.  
The dog fell in too.  
The frog went "oopsie."  
The frog went "I'm sorry."  
The dog went and sniffed the frog.  
The frog hopped onto a lily pad.  
The dog and the boy hopped onto a lily pad.  
They drowned at it.  
They didn't drown.

The frog fell off.  
Whoa!  
And the boy tried to catch the frog.  
But the frog fell off.  
And the boy actually caught the dog.  
The frog climbed onto a rock.  
The boy called him.  
The boy threw a rock at him.  
The boy and the dog wagged his tail.  
They went away.  
The frog was sad.  
The boy still went away.  
The frog, "I could still see them."  
The frog sad there alone, X X.  
The frog followed him.  
He followed him into his house.  
He smelled water.  
And the frog was on the dog's head.

### TRUE NARRATIVE:

There was a little boy.  
And he wanted to get a frog.  
And he brought his dog.  
He saw a frog in the pond.  
He ran to catch it.  
But he tripped over a log.  
And he fell in the water.  
When he came out, he had his bucket on his head.  
But the frog jumped over to a log.  
He told his dog to go try to get the frog.  
He put his dog on one side.  
And he got on the other side when the frog wasn't looking.  
He almost caught the frog.  
But instead, he caught his dog.  
When he saw what he caught, he was mad.  
The frog was mad that he almost got him.  
The little boy, he yelled to the frog.  
The frog sat on a rock.  
Then the boy went home and left the frog.  
The frog was sad alone.  
Then he followed the boy's footprints, not dog prints, until he got into the house.  
Then he kept following them into the bathroom where the little boy took a bath.  
"Hi," he said to the frog.  
Then the frog jumped in the tub.  
The End.

