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THESIS APPROVAL

The abstract and thesis of Christine Lee Rusnak for the Master of Science in Speech Communication: Speech and Hearing Science were presented May 23, 1996, and accepted by the thesis committee and the department.

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AN ABSTRACT OF THE THESIS OF Christine Lee Rusnak for the Master of Science in Speech Communication: Speech and Hearing Science presented on May 23, 1996.

Title: Gender Differences in Adaptive Behavior Between Two-year-old Boys and Girls with Slow Expressive Language Development

Research has suggested that there are significant differences between genders in various aspects of normal, as well as abnormal development. It has been established that more boys than girls have speech deficits, such as stuttering and poor articulation, are less social, and display more behavior problems (Eakins, 1978; Baker & Cantwell, 1982). However, past studies also suggest that females exhibit greater delays and deficits when affected by a disorder compared to males (Vogel, 1990; Paul, 1993).

The question posed by this study is: How do the communication skills, both expressive and receptive, as well as daily living skills, socialization skills, and motor skills of two-year-old boys with slow expressive language development compare with the same skills in two year-old girls with slow expressive language development?

Thirty two-year-old boys and 22 two-year-old girls identified as having slow expressive language development (SELD) were selected. Slow expressive language development is defined as producing fewer than 50

words by 20 months of age and was determined by parental report using the Language Development Survey (LDS) (Paul, 1991). The Vineland Adaptive Behavior Scale (VABS), which examines communication, motor, daily living, and socialization skills, was administered to the toddlers when both groups had a mean age of 26 months. To determine whether or not a significant difference exists between the scores of the two groups, a two-sample t-test for Equality of Means was used. Mean and standard deviation of the raw scores, standard scores, and age equivalents were obtained by both groups of toddlers. Analysis of the raw score means and age equivalent scores showed significant differences for the Expressive Communication Subdomain, with females demonstrating superior performance. A borderline significant difference also demonstrating superior female performance was shown on the Communication Domain, as well as the Socialization Domain. The t-test results also indicated significant female superiority on the Adaptive Behavior Composite when age equivalent scores were calculated. These findings suggest that although both the boys and girls possess slow expressive language development at two years of age, the girls demonstrate significantly higher adaptive behavior skills, particularly in expressive communication and socialization, compared to the boys.

GENDER DIFFERENCES IN ADAPTIVE BEHAVIOR
BETWEEN TWO-YEAR-OLD BOYS AND GIRLS
WITH SLOW EXPRESSIVE LANGUAGE DEVELOPMENT

by

CHRISTINE LEE RUSNAK

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

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in
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1996

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CHAPTER I

INTRODUCTION

Early identification of a speech and/or language disorder can be crucial for effective intervention. Knowledge of the specific characteristics and patterns of language development and delay will not only aid a speech-language pathologist in identifying individuals who are in need of intervention, but can assist in identifying intervention goals. It is often believed that if a child is exhibiting slow language development as early as age two, the child will most likely outgrow the problem and eventually catch up with their peers. However, a study by Paul and Smith (1991) found that 57% of the 28 children who were identified with slow expressive language development (SELD) at age 2 continued to exhibit deficits at age 4, supporting the findings of previous studies (Rescorla & Schwartz; 1990; Thal & Bates, 1988). Several studies have also shown that children identified with a language delay are placed at risk for a number of related deficits, such as learning disabilities, reading disorders, psychiatric disorders, and behavior problems (Hall & Tomblin, 1987; Cantwell, Baker, & Mattison, 1979; Baker & Cantwell, 1982).

Significant gender differences exist in the prevalence in speech and language disorders, learning disabilities, reading problems, autism, and

behavior problems, with males predominating with ratios as high as 4:1 (Eakins, 1978; Klien & Durfee, 1978; Baker & Cantwell, 1982; Taylor & Ounsted, 1972). Stewart's (1981) study of the prevalence of communication disorders in a mid-south public school system found boys to have a greater frequency of deficits than their counterpart females. Learning differences between genders have been explained by various studies to be connected to sex-linked, biologically determined variations in brain functioning (Helfeld, 1983). A study by Maccoby and Jacklin (as cited in Ackerman et al., 1983) found that boys showed better performance on spatial tasks (right-sided cognitive ability), while girls were better with verbal tasks (left-sided cognitive ability). Although it has been shown that males appear to be more susceptible to disorders, several studies have reported that when a female is exposed to a disorder, whether it be a language impairment, epilepsy, or autism, that female will possess more severe deficits with a worse prognosis (Ounsted & Taylor, 1972, pp. 232). Therefore, it may be questioned whether the gender differences in communication skills will continue to prevail when a female possesses a language impairment compared to a male with a language impairment. If a female is exposed to a disorder, will she also be more severely affected in other related areas, such as reading problems, learning disorders, and behavior problems, as well? These implications of gender differences can make a difference for the speech-language pathologist in deciding priority for intervention and

selection of related services.

Statement of Purpose

The purpose of this study is to examine the adaptive behaviors, based on nonverbal and verbal parameters, of a group of toddler girls with slow expressive language development (SELD) and compare them to the adaptive behaviors of a group of toddler boys with slow expressive language development.

In this study, it is hypothesized that two-year-old girls identified as having slow expressive language development will show a significant difference in their adaptive behaviors compared to the two-year-old boys with slow expressive language development, utilizing data obtained through a standardized parent interview measure.

The question addressed by this study is:

1. How do the communication skills, both expressive and receptive, as well as daily living skills, socialization skills, and motor skills of two-year-old girls with SELD compare with the same skills in two-year-old boys with SELD?

The null hypothesis states that there are no significant differences in communication skills, daily living skills, socialization skills, and motor skills of two-year-old girls with SELD compared to the same skills in two-year-old boys with SELD, as measured by a standardized parent interview

instrument.

DEFINITION OF TERMS

Daily Living Skills: personal-, domestic-, and community-oriented skills performed by an individual. These skills include how the individual eats, dresses, practices personal hygiene, performs household tasks, uses time, money, and the telephone, as well as performance of job skills (Sparrow, Balla, & Cicchetti, 1984).

Expressive communication: (as defined by the VABS) what an individual says, including skills of pre-speech expression, learning to talk, interactive speech, use of abstract concepts, and expressing complex ideas (Sparrow, Balla, & Cicchetti, 1984).

Language: a system of "abstract symbols and rule-governed structures, which may be sounds or letters which are formed into words" and includes the components of sign language (Hulit & Howard, 1991).

Mean Length of Utterance: a concept used to analyze an utterance where each morpheme in the utterance is counted, added to the total number of morphemes in the sample being analyzed, and divided by the total number of utterances (Hulit & Howard, 1993).

Morpheme: the smallest meaningful unit of language, which may be sounds, syllables, or words, depending upon the context (Hulit & Howard, 1993).

Motor Skills: gross movements, such as use of the arms and legs for movement and coordination, and fine movements, such as use of the hands and fingers to manipulate objects (Sparrow, Balla, & Cicchetti, 1984).

Phonology: the structure, placement, and sequencing of speech sounds (Haynes & Shulman, 1994).

Receptive communication: (as defined by the VABS) what an individual understands, which includes skills of listening, attending, and following instructions (Sparrow, Balla, & Cicchetti, 1984).

Slow expressive language delay (SELD): an individual between the age of 18 to 23 months who produces less than 10 intelligible words, or fewer than 50 words or no two-word combinations by 24 to 34 months of age (Paul, 1991).

Socialization Skills: various interpersonal, play and leisure, and coping skills displayed by an individual. These include how an individual interacts and plays with others, uses leisure time, demonstrates responsibility, and displays sensitivity to others (Sparrow, Balla, & Cicchetti, 1984).

Speech: the oral expression of language (Hulit & Howard, 1991).

Upper Bound Morpheme: the longest utterance produced by an individual in the terms of bound morphemes, which are units of meaning attached to free morphemes, which can stand alone and still be meaningful. (Schachter, Shore, Hodapp, Chaplin, & Bundy, 1978; Hulit & Howard, 1993).

Vineland Adaptive Behavior Scale (VABS): Interview Edition.

Survey Form: a standardized measure used to obtain information regarding an individual's personal and social adaptability through a parental interview (Sparrow, Balla, & Cicchetti, 1984).

CHAPTER II

REVIEW OF THE LITERATURE

Sex-related differences have been documented in the incidence of speech and language development disorders. For instance, studies have shown ratios of nearly 4 to 1, males to females respectively, in the incidence of stuttering, delayed speech, developmental dyslexia, and infantile autism (Satz & Zaide, in Ludlow & Cooper, 1983). Taylor and Ounsted theorize that males have a slow maturation rate, causing greater vulnerability for developmental complications and disorders. However, they also comment that although boys show a higher incidence for disorders, girls may be more greatly affected by a occurring disorder, causing more serious consequences (in Ludlow & Cooper, 1983, p. 98). To support these findings, Peter and Spreen's study (as cited in Satz & Saide, 1983, p. 100) of females between the ages of 8 to 14 years with a learning handicap showed that they had poorer performance on all four scales of a self-report adjustment inventory, which were home, health, social, and emotional adjustments, on the self-report inventory than the males. Literature focusing on the gender differences observed in these areas during the development of normal and disabled children's skills will be reviewed.

Gender Differences in Normal Development

Daily Living Skills

As a toddler develops and elaborates various speech, cognitive, and motor skills, the child is also beginning to learn how to become a more independent and self-sufficient being. Entering the second year of life, the child will learn to get dressed, eat, and go to the bathroom with less supervision as the skills are mastered. Yet, will males and females show differences in their performance of these new skills? Gesell and Ilg (1949) comment that at 2 1/2 years, when the bladder's retention span begins to lengthen to a period up to five hours, girls appear to have better "bowel and bladder sphincter control" than boys, allowing longer periods of retention (Part I, p.331). However, they found females to be inconsistent in their bowel movements at age five, which may present problems during the toilet training period (Part II, p. 75).

Independent behaviors in the preschool child are often defined as being able to "attend to oneself in the bathroom, dress oneself, solve minor problems, and play alone" (Mussen, Conger, & Kagan, 1963). During free play, observations have displayed that males as early as 1 to 9 years of age exhibit more independent behaviors than the counterpart females. Reinisch, Rosenblum, Rubin, and Schulsinger (1991) analyzed the development of ten milestones (M1-10) reached by 4,653 infants during their first year of life, as provided by maternal records. The results were

analyzed in terms of sex and age at which each milestone was achieved, as well as, the time interval between the progression from milestone to milestone. The analysis revealed that boys spent longer periods of time developing the milestones of "stands with support" (M6), "crawls independently" (M7), "walks with support" (M8), and "stands without support" (M9), which are considered by the researchers as independent actions. Boys also reached these milestones, except "stands without support", earlier than girls did.

Barry, Bacon, and Child (1976) conducted a cross-cultural study to examine the socialization differences placed upon genders, which included the variables of responsibility or dutifulness training, nurturance training, obedience training, self-reliance training, and achievement training. Results showed increased pressure placed on females for nurturance, obedience, and responsibility, compared to achievement and self-reliance for boys. The researchers believe the differentiation of social pressures prepares the different genders for their sex roles. For example, females are trained for tasks which take place in the home and revolve around meeting others' needs, whereas males participate in tasks outside of the home (in Lee & Stewart). Although past research appears to support more independent behavior demonstrated by males, the definition of "independent behavior" is too broad in past studies and the area is too extensive to adequately interpret the findings which compare the genders,

particularly at age two.

Socialization Skills

Not only are there variations in the development of socialization skills between normal children and children exhibiting language delays, but evidence has shown significant gender variations among normally developing children as well. Observations have shown that girls' language contains factors of attentiveness, responsitivity, and support, whereas boys show more language usage directed toward getting attention, giving orders, and demonstrating dominance. Furthermore, preschool girls use polite and cooperative communication tactics while boys rely on directness and demands (Leaper, 1991).

Klein and Durfee (1978) observed the social behaviors of 40 one-year-old infants in both the home and clinical setting. Since the researchers were looking at the effects of gender, as well as birth order, on social skills, the infants were divided into groups of male and female, and first- and later-born within each group. Results of the study showed that for gender differences, girls were generally more social than boys. The aspect of positive communication was broken into the categories of smile, positive vocalization, and social sharing. Regardless of the setting, girls scored higher than boys for both positive vocalization and social sharing. Results also showed that the later-born girls exhibited more acts of proximity and contact seeking than the later-born boys. It has also been shown that male

infants are more irritable than female infants (Parsons, 1980).

Variations in socialization skills between girls and boys may be attributed to findings of significant differences in behaviors, with boys exhibiting more "problematic" behaviors. Research has indicated that the male-female ratio for referrals to child psychiatric services is 2:1 (Taylor & Ounsted, 1972). Sex-linked, biological differences in brain functioning between males and females have been thought to account for the fact that 95% of hyperactive children are boys (Helfeldt, 1983). It has also been observed that males, even as young as two years, display greater aggression and engaged in more frequent conflicts than females (Maccoby & Jacklin, 1974; Smith & Green, 1975, in Archer & Lloyd, 1982). Looking at the difference in genders regarding outcome, Battle and Lacey (as cited in Ackerman, Dykman, & Oglesby, 1983) discovered that the overactive boys progressed as low achievers, where their counterpart females became assertive achievers.

To explain the gender differences in the demonstration of problematic and aggressive behaviors, researchers have theorized that the sex hormone, testosterone, found in males is responsible (Archer & Lloyd, 1982). A study by Money and Ehrhardt (1972) discovered that females born with a rare adrenogenital syndrome, which causes the production of an androgen male sex hormone, exhibited rougher, more energetic play than the non-exposed females. However, a variance in more "aggressive"

behaviors between the two groups of females was not apparent (p.103).

Other theories attribute the variations in behavior and socialization skills to the influence of cultural stereotypes placed on children from the time they are born. For example, it is believed that boys are encouraged to act aggressively, be dominant, show independence, and defend themselves more often, whereas girls are to act more passive, emotional, and sympathetic (Archer & Lloyd, 1982). The influence on socialization skills may actually be due to a combination of both influences, biological and cultural. Although studies claim females exhibit superior socialization skills over males, the research is far too extensive with additional related factors to make this conclusion.

Motor Skills

As children grow in weight and height through the years, the concomitant development of their musculature supports fine and gross motor movements. Several studies concentrating on the development of motor skills have discovered that not only do children with speech and language impairments differ from their normal peers, specifically with a reduced rate of movement of the limbs and speech musculature, but general gender differences exist as well. For example, Annett (as cited in Lloyd & Archer, 1976, p.176) had 219 subjects between the age of 3.5 to 15 years shift a peg along a series of hole in order to examine manual dexterity. Results revealed that females exemplified superior performance

in fine motor coordination over the males across all ages. Smith et al. (as cited in Hindley, 1967) found, when analyzing the relationship of racial and gender differences in the age of walking across six racial subgroups, that females walked earlier than the counterpart males in five of the subgroups. Reinisch, Rosenblum, Rubin, and Schulsinger (1991) analyzed the development of ten milestones (M1-10) reached by 4,653 infants during their first year of life, as provided by maternal records. The results were analyzed in terms of sex and age at which each milestone was achieved, as well as the time interval between the progression from milestone to milestone. Observations displayed that although girls achieved "sits without support" (M5) approximately three days earlier than boys, they advanced into "crawls independently" (M7) nearly seven days later than boys. However, both sexes reached the final milestone "walks without support" (M10) at almost identical ages.

Gender differences in motor skills has also been displayed by studies which varied the mode of presentation (visual versus symbolic or semantic) for the information to be processed by the subjects (McGuinness, in Lloyd & Archer, 1976). A study by Cook and Shepard (as cited in Lloyd & Archer, 1976, p.127) found that 5, 10, and 20 year old male subjects outperformed females when required to move a lever to change the direction of a spot of light. This study investigated the visual presentation of information which requires the use of large muscles. However, when

studies involved the presentation of stimuli requiring small muscle movement, such as the WAIS digit substitution task, typing, and cancellation tasks, females outperformed the males. Although past studies support superior performance of fine motor skills by females over males, the research is too limited, especially in the studies of toddlers, to sufficiently establish the findings.

Speech and Language Skills

Many studies have attempted to show significant differences in gender in language acquisition and phonological development, with a majority displaying superior performance by females (Schachter, 1978; Smith & Connelly, 1972; Lawson & Inglis, 1984). Anastasiow (1986) comments that verbal skills in females develop earlier and continue to be superior to verbal skills of males, even into adulthood (p. 232). Looking at language acquisition, Schachter et al. (1978) conducted a study with 60 toddlers with a mean age of 23.80 months who were later observed at the mean age of 28.57 months; both groups were divided by gender. The subjects' mean length of utterance (MLU) scores were obtained and analyzed by four measures: (1) MLU in words, (2) MLU in morphemes, (3) upper bound (UB) in words, and (4) UB in morphemes. Upper bound (UB) is defined as "the child's longest utterance" (Schachter et al., 1978, p.390). For both the initial and second observation, results showed that girls were more advanced in all four measures compared to the boys. Schachter et al.

(1978) concluded that girls talk earlier and are more advanced in language acquisition than their peer males. In a study by Paynter and Petty (1974), the speech development of 90 children was followed from 2 years to 5 years of age, looking specifically at gender differences in consonant development. Although both genders showed no difference at age 2, when another 6 months had passed, the girls had surpassed the boys by adding the complex sounds of /s, l, st, r/ to their speech. In the analysis, the researchers counted a consonant when it occurred in 90% of the cases. Results showed girls to possess seven consonants, yet boys possessing only five, with more dysfluencies occurring between 4 and 5 years of age. Smith and Connally (as cited in Lloyd & Archer, 1976, p.125) found that boys' vocalizations consist of more "noise" compared to the girls' vocalizations which contain more speech, supporting the findings that at later ages girls exhibit superior clarity and quality of speech than their counterpart males. Studies have shown superior performance by females on the verbal scales of several standardized measures, such as the Learning Disability Index and the Wechsler Adult Intelligence Scale (Lawson & Inglis, 1984; Matarazzo, 1972).

In relation to speech and language abilities, several studies have indicated that females exhibit superior performance to males in their early reading and spelling skill development, which continue to excel into adulthood (Vogel, 1990). However, it has been hypothesized that the higher verbal abilities in females may be due to the early maturation of

females over males by, on the average, two years (Anastasiow, 1986).

Maccoby and Jacklin (as cited in Vogel, 1990) caution that from an analysis of 131 studies where 74% showed female superiority in verbal abilities, only 38% held a significant difference between genders. Hyde and Linn (1988) closely analyzed a pool of 165 studies, obtained from Maccoby and Jacklin's (1974) Table 3.3, searches of the databases PsychINFO and ERIC, and 1986 issues of psychology journals, which examined gender differences in verbal abilities. Examination revealed that only 27% of the studies favored female performance of a statistical significance, whereas 66% found no significant gender difference in performance and 7% of the studies favored males.

Looking at the studies which did find a significant difference in favor of females, the magnitude was only 0.20 standard deviations on measures of general verbal ability, which is extremely small and provides little empirical support. The researchers concluded that no significant gender differences in verbal ability exist. Therefore, although many studies establish superior verbal abilities in females over males, several studies have also found results which contradict these findings. With the extensive number of studies in this area, the contradiction in findings, and limitations of the research, the current speculation is that no significant gender differences exist.

Gender Differences in Communication and Related Disorders

Research has shown females to mature at a faster rate than males while also confirming that males are more genetically vulnerable to handicapping conditions and deficits. The male is created through a combination of one X chromosome, which contains a full set of genes, and one Y chromosome, which contains 100 *less* genes than the X chromosome. The genes are classified as being either dominant, which are "strong", or recessive, which are "weaker" and prone to carrying disorders. Unlike a female, a male is not protected by possessing two X chromosomes and is therefore, more susceptible to receiving recessive genes from their mother (Anastasiow, 1986) . Males have predominated the special education population with the manifestation of more reading problems, speech and language problems, hearing deficits, visual defects, and behavior disorders than their counterpart females (Anastasiow, 1986; Peters & Guitar, 1991; Taylor & Ounsted, 1972).

The population of mental retardation, including all categories, causes, such as cerebral palsy and Down Syndrome, and severity levels, has been consistently dominated by males. However, regarding the factor of severity of retardation, the ratio becomes less marked when approaching the more "severe" end of the continuum, which supports theories that affected females suffer greater deficits. (Taylor & Ounsted, 1972). Singer, Westphal, and Niswander (1968) analyzed data from the Collaborative Study of Cerebral Palsy to determine if gender differences exist from birth to

4 years of age regarding physical, psychological, and neurological development. Investigation revealed that 8-month-old males exhibited poorer scores on the mental, fine-motor, gross-motor, and overall summary scales compared to the females. Among the 248 possible abnormalities which may occur, 65% occur in males with a higher incidence compared to only 26.6% having a high incidence in females. Studies have shown a male to female ratio of 4 to 1 among the autistic population, with females, although being rarely affected, exhibiting greater deficits than commonly affected males. In a study of 384 boys and 91 girls, ranging from 3 to 8 years of age and rated as mildly to severely autistic by the Childhood Autism Rating Scale (CARS), results supported previous findings. Lord, Schopler, and Revicki (1982) found that as a group, males showed superior performance on the cognitive measures of IQ, Vineland social quotient, receptive vocabulary, eye-hand integration tasks, and perceptual skills.

Studies in the prevalence of stuttering have shown three male stutterers for every female by the first grade and five males for each female by the fifth grade, indicating that the ratio may increase as a child grows older (Peters & Guitar, 1991). Research has also shown that the risk for stuttering is greater for relatives, especially male relatives, of female stutterers compared to relatives of male stutterers (Ludlow & Cooper, 1983). Yet, the research has also hypothesized that females may have an early age

of onset of abnormal dysfluencies with recovery occurring earlier.

Regarding the outcome of toddlers who exhibit slow expressive language development, Paul (1993) suggested that gender may present a difference in the rate of spontaneous recovery from a language delay in children. Paul (1993) conducted a study of following the development of a group of late talking (LT) toddlers, starting at age two and concluding when the children reached kindergarten age. Analyzing the data, results showed that LT boys showed a 60% chance of progressing into the normal development range for expressive language by age four. However, the matching group of girls showed only a 33% chance of moving into normal range. It was suggested that although the prevalence for language disorders is higher for boys, when it should occur in a girl, the disorder of a syndrome has more of a devastating affect. This would result in a greater inability for the girl's system to naturally overcome the disorder. However, the proportion of females examined in Paul's study was very small compared to the male subjects (9 girls compared to 28 boys). Therefore, the theories of gender differences for spontaneous recovery are only speculative. It is suggested that a future study using a large, and more equivalent, sample size be conducted to further analyze these findings.

For the population of dyslexic males and females in clinical environments and special education programs in the public schools, the ratio ranges from 2 to 1 to 15 to 1, with an overall ratio of 5 to 1 (Finucci &

Childs, 1981) However, when Shaywitz, Shaywitz, Fletcher, and Escobar (1990) investigated 215 girls and 199 boys with reading disabilities, as identified through either the school system or through research-based measures, results showed conflict when determining the prevalence of reading disorders among the two groups. For the research-identified boys and girls, no significant prevalence differences between the genders existed. However, for the reading-disordered children identified by the school system, the prevalence was two to four times higher among the boys. Therefore, the gender discrepancy may be related to an identification bias, with boys being more readily detected. Analyzing the decoding skills, reading comprehension, spelling, and arithmetic abilities of LD children, Hassett and Gurian's study (as cited in Vogel, 1990) found that although 35% of the girls showed reading problems compared to 17% of the boys, 53% of the boys compared to 33% of the girls were receiving services two years after diagnosis. Ryckman's (1981) study of children placed in an elementary school for those with a learning disability showed that females had lower Full Scale Intelligence Quotients, Verbal Intelligence Quotients, and Performance Intelligence Quotients than males. Berry, Shaywitz, and Shaywitz (1985) discovered that of the 32 girls and 102 boys referred to a Learning Disorders Unit at Yale University School of Medicine for Attention Deficit Disorder (ADD), the ADD females who also had hyperactivity demonstrated more severe cognitive and language deficits (in

Vogel, 1990). These findings support the speculations that females may exhibit greater deficits when affected. However, it has also been speculated that females are only referred for services when it appears that they are more severely impaired than a male, if at all (Vogel, 1990).

Summary

A number of studies have shown gender differences, apparent as early as age two, in the development of motor skills, socialization skills, and daily living skills (Schachter, et al., 1978; Annett, 1970; Archer & Lloyd, 1982). Girls have displayed superior performance in fine motor movements, use more sociable language and gestures, and are pressured to be nurturing, obedient, responsible, and dependent. However, when looking at studies examining normal receptive and expressive language development, the literature has been in conflict in determining which gender significantly excels. Looking at disorders and deficits occurring in these areas, the literature reveals that males show significant differences and are predominant in the prevalence of related disorders, such as stuttering and autism (Eakins, 1978; Klein & Durfee, 1978). However, it is also suggested that when a female is exposed to a developmental delay, she may be more greatly affected, may have a more reduced chance of recovery than a male, and furthermore, may not receive services when needed (Satz & Zaide, 1983; Paul 1993). Still, other researchers (Vogel, 1990; Shaywitz,

Shaywitz, Fletcher, & Escobar, 1990) have argued that the apparent predominance of males with language, learning, and attention disorders may be a referral bias, with boys more likely to be recommended for services than girls with similar problems.

This present study will attempt to examine the adaptive behaviors, which includes both receptive and expressive language skill, motor skill, living skill, and socialization skill development of both boys and girls who exhibit slow expressive language development at age two to determine whether the factor of gender may aid in narrowing down priority decisions for early intervention and/or related services.

CHAPTER III

METHODS AND PROCEDURE

Subject Recruitment

The subjects for this study were selected from the Portland Language Development Project (PLDP), a longitudinal study following children between 18 and 34 months of age with a focus on the outcome of early language delay. Although the PLDP recruited children identified as having a language delay, as well as those with normal language development, only the boys and girls demonstrating slow language development were included in the study.

Toddlers were admitted to the PLDP by responding to one of the following recruitment processes:

1. A Local radio broadcast solicitation for toddlers with a speech delay to participate in the PLDP.
2. A newspaper article placed in The Oregonian requesting the participation of toddlers with a speech delay in the PLDP.
3. A questionnaire issued by private physician offices in the Portland area to parents inquiring about their child's expressive language and interest in having their child participate.

The preliminary questionnaire, completed by the parents, asked for information regarding parental occupation, the child's age and expressive vocabulary size, as well as interest in further participation in the future. The children were classified as being either late talkers (LT), if producing less than 50 words, or a normal talker, if using over 50 words. Although both classifications of children were involved in the PLDP, only the LT group was considered for this study. The parents of the LT children were contacted and requested to come to Portland State University for further evaluations. Approval was received from the Human Subjects Research Review Committee for the use of the subjects in the PLDP, as well as for this study.

Subject Description

Twenty-two two-year-old girls and 30 two-year-old boys were selected for this study from the Portland Language Development Project (PLDP), a longitudinal study following children between 18 and 34 months of age who exhibit slow expressive language development (SELD). Both the girls and boys were regarded as having slow expressive language development (SELD) if they produced fewer than 50 words by 20 months of age (Paul, 1991). This information was obtained by parental report on the Language Development Survey (LDS), which contains a checklist of 300 of the most common words in children's early vocabulary (Rescorla, 1989). The LDS is

reported to have a high degree of validity, reliability, sensitivity, and specificity in identifying a language delay in toddlers. Even though both normal and delayed toddlers were included as subjects for the PLDP, only the subjects identified as having slow expressive language development were included in the present study.

During the period of administration of the VABS, the average age for the boys was found to be 26 months with a standard deviation of 3.91 months, and 26 months with a standard deviation of 3.32 months for the girls (see Table I). Using the Hollingshead Scale (Myers & Bean, 1968) to measure socioeconomic status (SES), the mean for the SELD group fell at the middle to lower-middle class level. Although a variety of ethnic groups were represented among the subjects, the majority were from a white ethnic group. All had English as their first language. All of the subjects displayed a developmental quotient of 85 or better on the Bayley Scale of Infant Development (Bayley, 1969), which indicated normal intelligence. The SELD subjects were screened for any neurological disorder or autism through informal observation by the researcher. The subjects also passed a hearing screening at 25 dB.

TABLE I
SELD GROUP DESCRIPTIONS AT INTAKE

Group	n	<u>Age for</u> <u>VABS Administration</u> 1		<u>SES</u> 2		<u>LDS Vocabulary</u> 3	
		mean	SD	mean	SD	mean	SD
Boys	30	25.53	3.73	3.30	.85	17.70	13.34
Girls	22	26.02	3.00	3.16	.82	25.33	15.72

1 Reported in months

2 Based on the Hollingshead Scale (Myers & Bean, 1968)

3 Number of words produced as reported on the Language Development Survey (Rescorla, 1989)

Procedures

The Vineland Adaptive Behavior Scale (VABS) was administered to the primary caregiver during a telephone interview. The purpose of the interview was explained by a trained graduate researcher before the process was started. Following the procedures outlined in the VABS manual, structured interviews were conducted with the caregiver by the graduate researcher, who was unaware if the caregiver's child was previously identified as demonstrating normal language development or a delay in expressive language. The administrator explained to the caregiver that there is no right or wrong answer, but rather that the question is whether the activity is *habitually or usually* performed by the child (Sparrow, Balla, & Cicchetti, 1984). The interviewer selects the starting point on the scoring sheet based on the child's chronological, mental, or social age. Questioning

begins with general, open-ended questions to yield information regarding the specific item on the scoring sheet. For example, if the item reads "relates experiences in detail when asked", the interviewer would say "describe to me what your child says when telling a story or telling about his day" and ask for a few examples. The interviewer then may use more specific questions and probes to obtain more detailed information. Once a basal and ceiling are established, the caregiver is asked to provide a general estimate of the child's functioning and the interview is completed.

Instrumentation

The Vineland Adaptive Behavior Scale (VABS): Interview Edition, Survey Form (Sparrow, Balla, & Cicchetti, 1984) is a standardized measure used to obtain information regarding an individual's personal and social adaptability through a parental interview. The interview is informally administered with the parents or caregivers of children ranging from age birth to 18 years, 11 months. The measure consists of four general areas to assess: the Communication Domain, which includes receptive language, expressive language, and writing skills; the Daily Living Domain, which examines self-care skills of washing, eating, dressing, etc.; the Motor Domain, which includes both gross and fine motor skills; and the Socialization Domain, which examines interpersonal relations, play, and leisure. A two-part section titled Maladaptive Behaviors is provided as an

option, with the first component describing minor maladaptive behaviors and the second component describing serious maladaptive behaviors.

Each item in the following scales are given a rating score: 2 for 'yes, usually'; 1 for 'sometimes or partially'; 0 for 'no, never'; N for 'no opportunity'; and DK for 'don't know'. The total scores for each domain are totaled together to form an Adaptive Behavior Composite. A basal age for each scale is determined when seven consecutive items are scored 2, and a ceiling is achieved with seven consecutive items scored 0.

The VABS is a norm-referenced instrument which was standardized on 100 individuals from 30 age groups ranging from birth to 18 years, 11 months, equating to 1,500 males and 1,500 females. Subjects originated from four geographic regions- Northeast, North Central, South, and West- and four racial groups- White, Black, Hispanic, and other. Internal consistency correlations ranged from .83 for the Motor Skills Domain to .94 for the Adaptive Behavior Composite. The test-retest correlation is .98 with interrater reliability ranging from .96 to .99 for the different domains.

Data Analysis

A group mean and standard deviation for the raw, standard scores, and age equivalents for each subdomain and domain from each of the two gender groups on the VABS were established. The areas which were examined are: 1) the Communication Domain, 2) the Daily Living

Domain, 3) the Motor Domain, 4) the Socialization Domain, and 5) the Adaptive Behavior Composite. The Communication Domain was divided into each of its subdomains, Receptive and Expressive, so that communication skills could be more closely examined. However, the scores from the Written Subdomain of the Communication Domain were excluded since the subjects were too young to possess sufficient writing skills. The Motor Skill Domain was also divided into each of its subdomains, Fine Motor and Gross Motor, to further examine the results.

To analyze the data, a two-sample t-test for Equality of Means was used to compare the females' mean scores to the males' mean scores in all 9 areas, which includes the 5 domains and the 4 subdomains.

CHAPTER IV

RESULTS AND DISCUSSION

Results

The purpose of this study was to determine if two-year-old girls identified as having slow expressive language development (SELD) display a significant difference in their adaptive behaviors compared to the two-year-old boys with SELD. To examine adaptive behaviors, the Vineland Adaptive Behavior Scale (VABS) was used to investigate the communication, daily living, socialization, and motor skills of the toddlers. The mean and standard deviation of the raw scores, standard scores, and age equivalents, are shown in Table 2, 3, and 4, for each of these dependant measures and have been calculated for both groups.

TABLE II

MEANS AND STANDARD DEVIATIONS FOR RAW SCORES
ON DEPENDENT MEASURES

Measure	Group	n	Mean	SD
Receptive Communication	Boys	30	19.63	2.65
	Girls	22	20.14	2.27

TABLE II
MEANS AND STANDARD DEVIATIONS FOR RAW SCORES
ON DEPENDENT MEASURES
(continued)

Measure	Group	n	Mean	SD
Expressive Communication	Boys	30	10.30	2.74
	Girls	22	12.59	3.97
Communication	Boys	30	29.93	4.60
	Girls	22	32.73	5.22
Daily Living	Boys	30	29.60	6.67
	Girls	22	32.82	6.04
Socialization	Boys	30	36.23	3.21
	Girls	22	38.27	3.97
Gross Motor Skills	Boys	30	22.57	2.99
	Girls	22	23.32	3.37
Fine Motor Skills	Boys	30	11.77	1.87
	Girls	22	12.09	2.27
Motor Skills	Boys	30	34.33	4.00
	Girls	22	35.41	4.70

TABLE III
MEANS AND STANDARD DEVIATIONS FOR STANDARD SCORES
ON DEPENDENT MEASURES

Measure	Group	n	Mean	SD
Communication	Boys	30	76.73	5.32
	Girls	22	77.09	12.64
Daily Living	Boys	30	82.87	8.23
	Girls	22	83.91	13.45
Socialization	Boys	30	83.17	6.58
	Girls	22	83.27	11.58
Motor Skills	Boys	30	88.03	9.13
	Girls	22	87.14	16.89
Adaptive Behavior Composite	Boys	30	78.03	7.87
	Girls	22	80.73	8.53

TABLE IV
MEANS AND STANDARD DEVIATIONS
FOR AGE EQUIVALENTS ON
DEPENDENT MEASURES

Measure	Group	Mean CA	Mean	SD
Receptive Communication	Boys	25.53	24.03	8.68
	Girls	26.05	25.18	9.64
Expressive Communication	Boys	25.53	13.93	2.55
	Girls	26.05	16.32	3.20

TABLE IV
MEANS AND STANDARD DEVIATIONS
FOR AGE EQUIVALENTS ON
DEPENDENT MEASURES
(continued)

Measure	Group	Mean CA	Mean	SD
Communication	Boys	25.53	16.20	2.09
	Girls	26.05	17.73	2.25
Daily Living	Boys	25.53	19.97	3.11
	Girls	26.05	21.32	2.85
Socialization	Boys	25.53	17.17	2.37
	Girls	26.05	18.55	2.87
Gross Motor Skills	Boys	25.53	22.53	3.09
	Girls	26.05	23.50	3.95
Fine Motor Skills	Boys	25.53	19.53	3.74
	Girls	26.05	20.18	4.53
Motor Skills	Boys	25.53	21.30	3.03
	Girls	26.05	22.41	3.70
Adaptive Behavior	Boys	25.53	18.73	2.05
Composite	Girls	26.05	20.27	2.43

To determine whether or not a significant difference exists between the scores of the two groups on any of the domains and/or subdomains, a two-sample t-test for Equality of Means was used. Levene's Test for Equality of Variances was used to determine if the p values were equal or unequal. Statistical significance was established at an alpha level of .05.

Results of the t-test, displayed on Table 5, include the name of measure, the t-value, degrees of freedom (df), and p value.

TABLE V
TWO-SAMPLE T-TEST FOR EQUALITY OF MEANS

Measure		t-value	df	p value
Receptive Communication	raw score	- .72	50	.476
Expressive Communication	raw score	-2.33	50	.026
Communication Skills	raw score	-2.04	50	.046
Daily Living Skills	raw score	-1.79	50	.080
Socialization Skills	raw score	-2.05	50	.046
Gross Motor Skills	raw score	- .85	50	.400
Fine Motor Skills	raw score	- .56	50	.575
Motor Skills	raw score	- .89	50	.376
Adaptive Behavior Composite	standard score	-1.18	50	.245

Analyzing the raw score means, a significant difference was found for the Expressive Communication Subdomain with a p value of .026. A borderline significant difference was also indicated for the Communication Domain and Socialization Domain, both with p values of .046. The results for the age equivalent scores indicated a significant difference for the Expressive Communication Subdomain, as well as the Communication

Domain, with p values of .004 and .015, respectively. The t-test also indicated a significant difference for the age equivalents on the Adaptive Behavior Composite with a p value of .017.

Discussion

The purpose of this study was to determine if a significant difference in performance of adaptive behaviors would occur between two-year-old boys and girls with slow expressive language development. Analyzing the scores obtained from the VABS, results of the two-sample t-test showed a significant difference between boys and girls on only three measures.

A t-test demonstrated that there was no significant difference between the mean ages expressed in months of the boys and girls. Therefore, age equivalent scores between the two groups can be measurably compared. The girls' mean raw score ($\mu = 12.59$) and age equivalent ($\mu = 16.32$) for the Expressive Communication Subdomain were significantly higher compared to the boys' mean raw score ($\mu = 10.30$) and age equivalent ($\mu = 13.93$). These results are to be expected when looking at the number of words expressed by the toddlers, as measured by the LDS, at the time of income to the study. The mean number of words expressed by the girls was 25.33 words compared to a mean of 17.7 words expressed by the boys. This difference may have contributed to the finding that the girls' raw score and age equivalent were also significantly higher compared to the boys for the

Communication Domain, which includes scores from both the Receptive and Expressive Communication Subdomain. These findings suggest that although both the boys and girls possess slow expressive language development at two years of age, the girls demonstrate significantly higher expressive language skills compared to the males, even though receptive language skills are comparable. The superior performance by the girls contradicts theories suggesting that females exhibit greater deficits and delays when affected by a disorder compared to the counterpart males (Vogel, 1990; Paul, 1993; Taylor & Ounsted, 1972).

Results from the t -test also showed higher raw scores for the girls on the Socialization Domain ($\mu = 38.27$) when compared to the males' raw scores ($\mu = 36.23$). At the .05 level of significance, the t -test indicated that the difference between the girls' and boys' age equivalents for the Socialization Domain was of borderline significance with a p value of .06. A study by Roth and Clark (1987) investigated the symbolic play and social participation of normal and language-impaired children. Their results revealed that the language-impaired children demonstrated more nonplay behaviors with deficits in social participation when compared to the normal children. Considering the findings of this study that girls demonstrated significantly higher expressive communication scores compared to the boys, the demonstration of higher socialization skills scores may be supported by Roth and Clark's findings. However, the role of

verbal skills also merits investigation.

Furthermore, results of the t-test also indicate a significant difference in age equivalents for the Adaptive Behavior Composite, which comprises performance on all of the domains, when comparing girls to boys. The girls' mean age equivalent ($\mu = 20.27$) was higher than the boys' mean age equivalent ($\mu = 18.73$). The higher age equivalent found for the girls may have been an effect of the higher age equivalents for the Expressive Communication Subdomain and Communication Domain when compared to the boys. However, the findings demonstrate better performance in overall adaptive behaviors by the girls compared to the boys. Once again, this outcome contradicts the hypothesis that females are more severely affected than males when presented with a disorder.

Although several studies support superior performance by females when compared to males, especially in the areas of verbal abilities and socialization skills, general findings are in conflict for several reasons. First, several researchers discovered that the significant differences shown by these studies were too small to provide empirical support in favor of females. Secondly, research in several of the areas examined is either outdated, very limited, or too broad to precisely summarize the findings. Therefore, current speculation is that no significant gender differences exist in the areas of verbal abilities, socialization skills, motor skills, and daily living skills. The findings of this study supports past research finding that

two-year-old SELD girls display superior performance, particularly in the areas of expressive communication and socialization skills, of adaptive behaviors when compared to two-year-old SELD boys, as demonstrated by a higher age equivalent score for the Vineland Adaptive Behavior Composite.

CHAPTER V

SUMMARY AND IMPLICATIONS

SUMMARY

A delay in the development of speech and language abilities for children places the child at risk for several related deficits, such as learning disabilities, behavior problems, psychiatric disorders, and reading disorders (Tomblin, 1987; Baker & Cantwell; 1982; Cantwell, Baker, & Mattison, 1979). Significant gender differences have been demonstrated in the prevalence of speech and language disorders, as well as for disorders in related areas, with males predominating with ratios as high as 4:1 (Eakins, 1978; Taylor & Ounsted, 1972). Gender differences can be a crucial factor for the speech-language pathologist to consider when making priority decisions for early intervention and the selection of related services.

The research question for this study was: Is there a significant difference in adaptive behaviors, which include receptive and expressive communication skills, daily living skills, socialization skills, and gross and fine motor skills, as measured by the Vineland Adaptive Behavior Scale, in two-year-old boys and girls who demonstrate slow expressive language development (SELD)?

A statistical analysis using a two-sample t -test was conducted for the scores obtained on the VABS. Significant differences were found for expressive communication abilities, as well as for socialization skills, with girls displaying superior performance. A significant difference was also demonstrated for the age equivalent assigned to the boys and girls for total performance on adaptive behavior measures, once again, favoring girls.

Implications

Research Implications

This study found no significant differences in gross and fine motor skills, daily living skills, and receptive communication skills between two-year-old SELD boys and girls, but showed some significant differences in expressive communication and socialization skills, with results favoring girls. It is possible that performance on the Socialization Domain may have been influenced by items requiring a verbal production, such as "addresses at least two familiar people by name" and "imitates adult phrases heard on previous occasions" (Sparrow, Balla, & Cicchetti, 1984). Several studies have also shown boys to exhibit more "problematic" behaviors, as well as comprise a higher ratio for psychiatric referral (Taylor & Ounsted, 1972). A related study, which includes the maladaptive behavior scale of the VABS, might yield a more detailed description of the behavior and its relation to socialization skills when comparing males to

females. However, Cantwell, Baker, and Mattison (1979) comment that previous research has implied that "there is a large group of language-delayed children who are at risk psychiatrically. . . (a) speech and language delay leads *indirectly* rather than directly to psychiatric disorder in children" (p. 460).

Future research might examine the pattern of adaptive behavior performance beyond the age of two for several reasons. First, the research in the related areas is either outdated or limited when examining the existence of gender differences, specifically at age two. Therefore, empirical support is restricted. Second, gender differences in the skills of these areas, especially for expressive communication and socialization, may be examined to determine whether a trend throughout childhood exists. For example, perhaps the expressive communication abilities and/or socialization skills of the SELD boys will approach the same level as the girls with increasing age. Lenneberg (1967) and Zangwill (1960) state that between the ages of 2 and 12 years exists a "critical period" in neurological development which involves language development and may be highly influenced by different maturational rates between boys and girls (as cited in McCardle & Wilson, 1990).

A duplicate study which compares the performance of the SELD girls to a group of matched normal girls, as well as comparing the performance of the SELD boys to a group of matched normal boys, might analyze which

gender most significantly differs in their abilities compared to normal performance. Although no significant gender differences were found in the areas of daily livings, gross and fine motor skills, and receptive communication, it may be questioned which gender deviates more from their normal peers.

Clinical Implications

This study showed a significant difference between genders in expressive communication skills, as well as socialization skills, with SELD boys exhibiting poorer performance. Clinically, these results hold several implications for early intervention and the selection of services. First, previous studies theorize that when a female is affected by a disorder, the result is a greater delay or possession of more deficits compared to when a male is affected (Satz & Zaide; 1983). However, results of this study demonstrate more delayed skills in expressive communication and socialization in SELD boys. It is suggested that these factors be given consideration by professionals when deciding priority for early speech and language intervention, especially for males. Second, the finding that the SELD boys exhibited poorer expressive communication skills, as well as poorer socialization skills, implies the necessity of a multidisciplinary team approach in the early intervention process. The speech-language pathologist and other professional can work hand in hand to select the appropriate services for the child and determine functional goals which

incorporate the use of speech and language skills during social interaction.

Reflecting on Lenneberg and Zangwill's theory of a "critical period" which is influenced by different maturational rates of males and females, Singer et al. (1968) recommends that these maturational differences be controlled during the assessment process by standardizing tests by sex, rather than chronological age. This action may have certainly affected the results found by this study, considering studies have found boys to mature at a slower rate than girls (Anastasiow, 1986).

Although the sample size of this study was large enough to hold power, further investigation, especially for development beyond age two, would be necessary to induce that any gender differences exist for children with slow expressive language development in their adaptive behaviors, with specific focus given to expressive communication and socialization skills. The two-year-olds investigated for this study were predominately from a middle class socioeconomic background, which generalizes the results of this study only to other middle class children.

References

- Ackerman, P., Dykman, R., & Oglesby, D. M. (Eds.). (1983). Sex and group differences in reading and attention disordered children with and without hyperkinesis. Journal of Learning Disabilities, 16, 407-415.
- Anastasiow, N. (1986). Development and disability: A psychobiological analysis for special educators. Baltimore, MD: Paul H. Brooks.
- Archer, J. & Lloyd, B. (1982). Sex and gender. New York: Cambridge University.
- Baker, L. & Cantwell, D. (1982). Developmental, social, and behavioral characteristics of speech and language disordered children. Child Psychiatry and Human Development, 12 (4), 195-205.
- Barry, H., Bacon, M., & Child, I. (1976). A cross-cultural survey of some sex differences in socialization. In Lee, P. & Stewart, R. (Eds.). Sex differences: Cultural and developmental dimensions (pp. 217-229). New York: Urizen.
- Bayley, N. (1969). Scales of infant mental development. New York: Psychological Corp.
- Berry, C., Shaywitz, S., & Shaywitz, B. (1985). Girls with attention deficit disorder: A silent minority? A report on behavioral and cognitive characteristics. Pediatrics, 76 (5), 801-809.

Cantwell, D., Baker, L., & Mattison, R. (1979). The prevalence of psychiatric disorder in children with speech and language disorder: An epidemiologic study. Journal of the American Academy of Child Psychiatry, 18, 450-461.

Cook, T. & Shepard, A. (1958). Performance on several control-display relationships as a function of age and sex. In Lloyd, B. & Archer, J. (Eds.) . Exploring sex differences (pp. 127). New York: Academic Press.

Eakins, B. & Eakins, R. (1978). Sex differences in human communication. Boston: Houghton Mifflin Company.

Finucci, J. & Childs, B. (1981). Are there really more dyslexic boys than girls? In Ansara, A., Geschwind, N., Galaburda, A., Albert, M., & Gartell, N. (Eds.) . Sex differences in dyslexia (pp. 1-9). Towson, MD: Orton Dyslexia Society.

Gesell, H. & Ilg, M. (1949). Child development: An introduction to the study of human growth. New York: Harper & Brothers.

Hall, P. & Tomblin, J. (1978). A follow-up study of children with articulation and language disorders. Journal of Speech and Hearing Disorders, 43, 227-241.

Hayes, W. & Shulman, B. (1994). Communication development: Foundations, processes, and clinical applications. New Jersey: Prentice Hall.

Helfeldt, J. (1983). Sex-linked characteristics of brain functioning: Why

Jimmy reads differently. Reading World, 22, 190-196.

Hindley, C. (1967). Racial and sexual differences in age of walking: A reanalysis of the Smith et al. (1930) data. The Journal of Genetic Psychology, 111, 161-167.

Hulit, L. & Howard, M. (1991). Born to talk: An introduction to speech and language development. New York: Merrill.

Hyde, J. & Linn, M. (1988). Gender differences in verbal ability: A meta-analysis. Psychological Bulletin, 104 (1), 53-69.

Klein, R. & Durfee, J. (1978). Effects of sex and birth order on infant social behavior. Infant Behavior and Development, 1, 106-117.

Lawson, J. & Inglis, J. (1984). The psychometric assessment of children with learning disabilities: An index derived from a principal components analysis of the WISC-R. Journal of Learning Disabilities, 17 (9), 517-522.

Leaper, C. (1991). Influence and involvement in children's discourse: Age, gender, and partner effects. Child Development, 62, 797-811.

Lee, P. & Stewart, R. (Eds.) . (1976). Sex differences: Cultural and developmental dimensions. Urizen Books: New York.

Lloyd, B. & Archer, J. (Eds.) . (1976). Exploring sex differences. New York: Academic Press.

Lord, C., Schopler, E. & Revicki, D. (1982). Sex differences in autism. Journal of Autism and Developmental Disorders, 12 (4), 321-329.

Ludlow, C. & Cooper, J. (1983). Genetic aspects of speech and language

disorders. New York: Academic Press.

Matarazzo, J. (1972). Wechsler's measurement and appraisal of adult intelligence (5th ed.). Baltimore: Williams and Wilkins.

McCardle, P. & Wilson, B. (1990). Hormonal influence on language development in physically advanced children. Brain and Language, 38, 410-423.

McGuinness, D. (1976). Sex differences in the organization of perception and cognition. In Lloyd, B. & Archer, J. (Eds.). Exploring sex differences (pp.123-156). New York: Academic Press.

Money, J. & Ehrhardt, A. (1972). Man and woman, boy and girl: The differentiation and dimorphism of gender identity from conception to maturity. Baltimore: Johns Hopkins University Press.

Mussen, P., Conger, J., & Kagan, J. (1963). Child development and personality. Harper & Row: New York.

Myers, J. & Bean, L. (1968). A decade later: A follow-up of social class and mental illness. New York: Wiley.

Parsons, J. E. (1980). The psychobiology of sex differences and sex roles. New York: Hemisphere.

Paul, R. (1993). Patterns of development in late talkers: Preschool years. Journal of Childhood Communication Disorders, 15, 7-14.

Paul, R. (1991). Profiles of toddlers with slow expressive language development. Topics in Language Disorders, 11 (4), 1-13.

Paul, R., & Smith, R. (1993). Narrative skills in 4-year-olds with normal, impaired, and late-developing language. Journal of Speech and Hearing Research, 36, 592-598.

Paynter, E. & Petty, N. (1974). Articulatory sound: Acquisition of two-year-old children. Perceptual and Motor Skills, 39, 1079-1085.

Peters, T. & Guitar, B. (1991). Stuttering: An integrated approach to its nature and treatment. Baltimore, MD: Williams & Wilkins.

Reinisch, J., Rosenblum, L., Rubin, D., & Schulsinger, M. (1991). Sex differences in developmental milestones during the first year of life. Journal of Psychology and Human Sexuality, 4, 19-36.

Rescorla, L. (1989). The language development survey: A screening tool for delayed language in toddlers. Journal of Speech and Hearing Disorders, 54, 587-599.

Rescorla, L. & Schwartz, E. (1990). Outcome of toddlers with specific expressive language delay. Applied Psycholinguistics, 11 (4), 393-408.

Roth, F. & Clark, D. (1987). Symbolic play and social participation abilities of language-impaired and normally developing children. Journal of Speech and Hearing Disorders, 52, 17-29.

Ryckman, J. (1981). Searching for a WISC-R profile for learning disabled kids: An inappropriate task? Journal of Learning Disabilities, 14 (9), 508-511.

Satz, P. & Zaide, J. (1983). Sex differences: Clues or myths on genetic aspects of speech and language disorders? In Ludlow, S. & Cooper, J. (Eds.)

Genetic aspects of speech and language disorders (pp.85-108). New York: Academic Press.

Schachter, F. et al. (1978). Do girls talk earlier?: Mean length of utterance in toddlers. Developmental Psychology, 14 (4), 388-392.

Shaywitz, S., Shaywitz, B., Fletcher, J., & Escobar, M. (1990). Prevalence of reading disability in boys and girls: Results of the Connecticut longitudinal study. Journal of the American Medical Association, 264 (8), 998-1002.

Singer, J., Westphal, M., & Niswander, K. (1968). Sex differences in the incidence of neonatal abnormalities and abnormal performance in early childhood. Child Development, 39, 102-111.

Smith, P. & Connally, K. (1976). Patterns of play and social interaction in pre-school children. In Lloyd, B. & Archer, J. (Eds.). Exploring sex differences (pp. 125). New York: Academic Press.

Sparrow, S., Balla, D., & Cicchetti, D. (1984). Vineland adaptive behavior scales. Minneapolis, MN: American Guidance Service.

Stewart, J. (1981). Multidimensional scaling analysis of communicative disorders by race and sex in a mid-south public school system. Journal of Communication Disorders, 14, 467-483.

Taylor, D. & Ounsted, C. (1972). The nature of gender differences explored through ontogenetic analyses of sex ratios in disease. In Ounsted, C. & Taylor, D. (Eds.). Gender differences: Their ontogeny and

significance (pp.215-240). London: Churchill Livingstone.

Thal, D., & Bates, E. (1988). Language and gesture in late talkers. Journal of Speech and Hearing Research, 31, 115-123.

Vogel, S. (1990). Gender differences in intelligence, language, visual-motor abilities, and academic achievement in students with learning disabilities: A review of the literature. Journal of Learning Disabilities, 23, 44-52.

APPENDIX A

SUBJECT RECRUITMENT QUESTIONNAIRE

QUESTIONNAIRE FOR PARENTS OF CHILDREN 15-30 MONTHS OLD

What is your child's:

first name? _____ date of birth? _____

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

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

Mother's occupation _____

Father's occupation _____

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

none _____	5-10 _____	30-50 _____
less than 5 _____	10-30 _____	More than 50 _____

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

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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

Yes _____ No _____

If yes please give three examples here:

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

Yes _____ No _____

APPENDIX B

SUBJECT DEMOGRAPHIC DESCRIPTIONS

DEMOGRAPHIC DESCRIPTION FOR BOYS WITH
SLOW EXPRESSIVE LANGUAGE DEVELOPMENT

Subject #	Age (in mo.)	LDS	SES
006	23	008	4
007	23	009	4
015	32	084	3
026	31	072	3
039	22	028	4
041	21	035	3
053	28	030	3
060	30	071	4
083	21	001	4
084	20	002	4
085	28	019	3
086	20	069	4
087	25	005	3
090	28	006	3
091	27	016	4
092	33	045	4
093	24	022	3
094	31	023	3
097	22	012	3
098	19	005	3
100	29	027	5
103	25	015	4
105	24	007	2
112	27	035	2
114	24	007	4
115	29	006	3
116	31	029	2
119	26	002	4
207	29	037	2
211	27	003	3
212	30	022	4
225	28	044	1

DEMOGRAPHIC DESCRIPTIONS FOR GIRLS WITH
SLOW EXPRESSIVE LANGUAGE DEVELOPMENT

Subject #	Age (in mo.)	LDS	SES
019	32	088	3
029	26	014	5
052	18	014	3
057	20	020	2
089	24	027	3
101	25	051	3
111	24	013	3
142	22	005	4
200	25	005	4
201	29	129	4
202	32	024	3
204	26	246	3
205	31	061	3
208	26	059	3
210	23	049	3
213	27	NR	3
214	26	038	3
215	25	036	3
216	28	032	3
217	27	044	3
218	27	008	3
219	27	008	3
220	28	011	3
221	32	035	1
222	28	000	4
223	27	043	4
224	29	047	2
226	29	060	3
227	24	037	2

APPENDIX C

VINELAND ADAPTIVE BEHAVIOR SCALE

VINELAND

ADAPTIVE BEHAVIOR SCALES

Sara S. Sparrow, David A. Balla, and Domenic V. Cicchetti
A revision of the *Vineland Social Maturity Scale* by Edgar A. Doll

INTERVIEW EDITION

Survey Form

Record Booklet

ABOUT THE INDIVIDUAL:

Name _____ Sex _____
Home address _____
Telephone (_____) _____ Grade _____
School or other facility _____
Present classification or diagnosis _____
Race (if pertinent) _____
Socioeconomic background (if pertinent) _____
Other pertinent information _____

AGE: YEAR MONTH DAY

Interview date _____
Birth date _____
Chronological age _____
Age used for starting points _____
Type (circle one): chronological mental social

REASON FOR THE INTERVIEW: _____

ABOUT THE RESPONDENT:

Name _____ Sex _____
Relationship to individual _____
ABOUT THE INTERVIEWER:
Name _____ Sex _____
Position _____

DATA FROM OTHER TESTS:

Intelligence _____
Achievement _____
Adaptive behavior _____
Other _____

BEFORE BEGINNING ADMINISTRATION, READ THE INSTRUCTIONS IN THE MANUAL CAREFULLY.

General Directions: In each adaptive behavior domain, begin scoring with the item designated for the individual's age. Score each item 2, 1, 0, N, or DK, according to the scoring criteria in the manual (Appendix C). Record each score in this booklet in the designated box. Establish a *basal* of seven consecutive items scored 2 and a *ceiling* of seven consecutive items scored 0 for each domain. (For reference when totaling scores, the highest possible sums are printed in the upper right corner of the sum boxes.)

Vineland Adaptive Behavior Scales: INTERVIEW EDITION Survey Form

Individual's name _____ Chronological age _____

Date of interview _____ Supplementary norm group (if applicable) _____

Before beginning the score summary, read Chapter 5 in the manual.

SCORE SUMMARY

SUBDOMAIN	Raw Score	Standard Score X=100, SD=15 Tables B.1 and B.2	Band of Error % Confidence Table B.3	National %ile Rank Table B.4	Stanine Table B.4	Supplementary Norm Group %ile Rank Table B.5	Adaptive Level Tables B.6 and B.8	Supplementary Norm Group Adaptive Level Tables B.7 and B.9	Age Equivalent Tables B.10 and B.11
Receptive									
Expressive									
Written									
COMMUNICATION DOMAIN SUM			±						
Personal									
Domestic									
Community									
DAILY LIVING SKILLS DOMAIN SUM			±						
Interpersonal Relationships									
Play and Leisure Time									
Coping Skills									
SOCIALIZATION DOMAIN SUM			±						
(For ages to 5-11-30) Gross									
Fine									
MOTOR SKILLS DOMAIN SUM			±						
SUM OF DOMAIN STANDARD SCORES									
ADAPTIVE BEHAVIOR COMPOSITE			±						

(See Chapter 5 in the manual to graph scores.)

SCORE PROFILE

OPTIONAL

MALADAPTIVE BEHAVIOR DOMAIN

(Administer for ages 5-0-0 and older)

Raw Score

Maladaptive Level: Table B.12

Supplementary Norm Group
Maladaptive Level: Table B.13

Part 1

Parts 1 and 2

Additional interpretive information (see Chapters 5 and 6 in the manual)

Recommendations

ITEM 2 Yes, usually
 1 Sometimes or partially
 0 No, never
 N No opportunity
 DK Don't know

- 34 Uses phrases or sentences containing "but" and "or"
- 35 Articulates clearly, without sound substitutions
- 36 Tells popular story, fairy tale, lengthy joke, or television show plot
- 37 Recites all letters of the alphabet from memory
- 38 Reads at least three common signs
- 39 States month and day of birthday when asked
- 40 Uses irregular plurals
- 41 Prints or writes own first and last name
- 42 States telephone number when asked N MAY BE SCORED
- 43 States complete home address, including city and state, when asked
- 44 Reads at least 10 words silently or aloud
- 45 Prints or writes at least 10 words from memory
- 46 Expresses ideas in more than one way, without assistance
- 47 Reads simple stories aloud
- 48 Prints or writes simple sentences of three or four words
- 49 Attends to school or public lecture more than 15 minutes
- 50 Reads on own initiative
- 51 Reads books of at least second-grade level
- 52 Arranges items or words alphabetically by first letter
- 53 Prints or writes short notes or messages
- 54 Gives complex directions to others
- 55 Writes beginning letters DO NOT SCORE 1
- 56 Reads books of at least fourth-grade level
- 57 Writes in cursive most of the time DO NOT SCORE 1
- 58 Uses a dictionary
- 59 Uses the table of contents in reading materials
- 60 Writes reports or compositions DO NOT SCORE 1
- 61 Addresses envelopes completely
- 62 Uses the index in reading materials
- 63 Reads adult newspaper stories N MAY BE SCORED
- 64 Has realistic long-range goals and describes in detail plans to achieve them
- 65 Writes advanced letters
- 66 Reads adult newspaper or magazine stories each week N MAY BE SCORED
- 67 Writes business letters DO NOT SCORE 1

Count items before basal as 2, items after ceiling as 0

COMMENTS

1 Sum of 2s, 1s, 0s page 3
 2 Sum of 2s, 1s, 0s page 2
 3 Number of Ns pages 2 and 3
 4 Number of DKs pages 2 and 3
 26 62 46
 SUBDOMAIN RAW SCORE
 (Add rows 1—4 above)

RECEPTIVE

EXPRESSIVE

WRITTEN

COMMUNICATION DOMAIN

ITEM SCORES

- 6

22

14

34

COMMENTS _____

DOMESTIC

COMMUNITY

DAILY LIVING SKILLS DOMAIN

DAILY LIVING SKILLS DOMAIN

ITEM SCORES
 2 Yes, usually
 1 Sometimes or partially
 0 No, never
 N No opportunity
 DK Don't know

- < 1 Indicates anticipation of feeding on seeing bottle, breast, or food
- 2 Opens mouth when spoon with food is presented
- 3 Removes food from spoon with mouth
- 4 Sucks or chews on crackers
- 5 Eats solid food
- 1 6 Drinks from cup or glass unassisted
- 7 Feeds self with spoon
- 8 Demonstrates understanding that hot things are dangerous
- 9 Indicates wet or soiled pants or diaper by pointing, vocalizing, or pulling at diaper
- 10 Sucks from straw
- 11 Willingly allows caregiver to wipe nose
- 12 Feeds self with fork
- 13 Removes front-opening coat, sweater, or shirt without assistance
- 14 Feeds self with spoon without spilling
- 15 Demonstrates interest in changing clothes when very wet or muddy
- 16 Urinates in toilet or potty-chair
- 17 Bathes self with assistance
- 18 Defecates in toilet or potty-chair
- 19 Asks to use toilet
- 20 Puts on "pull-up" garments with elastic waistbands
- 21 Demonstrates understanding of the function of money
- 22 Puts possessions away when asked
- 23 Is toilet-trained during the night
- 24 Gets drink of water from tap unassisted
- 25 Brushes teeth without assistance
DO NOT SCORE 1
- 26 Demonstrates understanding of the function of a clock, either standard or digital
- 27 Helps with extra chores when asked
- 28 Washes and dries face without assistance
- 29 Puts shoes on correct feet without assistance
- 30 Answers the telephone appropriately.
N MAY BE SCORED
- 31 Dresses self completely, except for tying shoelaces
- 4 32 Summons to the telephone the person receiving a call, or indicates that the person is not available. N MAY BE SCORED
- 33 Sets table with assistance

Count items before basal as 2, items after ceiling as 0.

COMMENTS _____

4

PERSONAL

DOMESTIC

COMMUNITY

COMMENTS

50 6 10

Sum of 2s, 1s, 0s page 4

PERSONAL

DOMESTIC

COMMUNITY

DAILY LIVING SKILLS DOMAIN

ITEM 2 Yes, usually
 SCORES 1 Sometimes or partially
 0 No, never
 N No opportunity
 DK Don't know

- 9, 10 64 Tells time by five-minute segments
- 65 Cares for hair without being reminded and without assistance
 DO NOT SCORE 1
- 66 Uses stove or microwave oven for cooking
- 67 Uses household cleaning products appropriately and correctly
- 11, 12 68 Correctly counts change from a purchase costing more than a dollar
- 69 Uses the telephone for all kinds of calls, without assistance
 N MAY BE SCORED
- 70 Cares for own fingernails without being reminded and without assistance DO NOT SCORE 1
- 71 Prepares foods that require mixing and cooking, without assistance
- 13, 14 72 Uses a pay telephone N MAY BE SCORED
- 73 Straightens own room without being reminded
- 74 Saves for and has purchased at least one major recreational item
- 75 Looks after own health
- 16 76 Earns spending money on a regular basis
- 77 Makes own bed and changes bedding routinely.
 DO NOT SCORE 1
- 78 Cleans room other than own regularly, without being asked
- 79 Performs routine household repairs and maintenance tasks without being asked
- 17 to 18+ 80 Sews buttons, snaps, or hooks on clothes when asked
- 81 Budgets for weekly expenses
- 82 Manages own money without assistance
- 83 Plans and prepares main meal of the day without assistance
- 84 Arrives at work on time
- 85 Takes complete care of own clothes without being reminded
 DO NOT SCORE 1
- 86 Notifies supervisor if arrival at work will be delayed
- 87 Notifies supervisor when absent because of illness
- 88 Budgets for monthly expenses
- 89 Sews own hems or makes other alterations without being asked and without assistance
- 90 Obeys time limits for coffee breaks and lunch at work
- 91 Holds full-time job responsibly DO NOT SCORE 1
- 92 Has checking account and uses it responsibly

Count items before basal as 2, items after ceiling as 0.

COMMENTS _____

6

PERSONAL
 DOMESTIC
 COMMUNITY

1	6	22	30	Sum of 2s, 1s, 0s page 6
2				Sum of 2s, 1s, 0s page 5
3				Sum of 2s, 1s, 0s page 4
4				Number of Ns pages 4, 5, 6
5				Number of DKs pages 4, 5, 6
	78	42	84	SUBDOMAIN RAW SCORE (Add rows 1—5 above)

PERSONAL

DOMESTIC

COMMUNITY

ITEM SCORES

- 1.

40 24 10

Sum of 2s, 1s, 0s page 7

COMMENTS

INTERPERSONAL RELATIONSHIPS

PLAY & LEISURE TIME

COPING SKILLS

7

SOCIALIZATION DOMAIN

SOCIALIZATION DOMAIN

ITEM 2 Yes, usually
1 Sometimes or partially
0 No, never
N No opportunity
DK Don't know

38. Responds appropriately when introduced to strangers
- 7, 8 39. Makes or buys small gifts for caregiver or family member on major holidays, on own initiative
40. Keeps secrets or confidences for more than one day
41. Returns borrowed toys, possessions, or money to peers, or returns borrowed books to library
42. Ends conversations appropriately
43. Follows time limits set by caregiver
44. Refrains from asking questions or making statements that might embarrass or hurt others
45. Controls anger or hurt feelings when denied own way
46. Keeps secrets or confidences for as long as appropriate
- 10, 11 47. Uses appropriate table manners without being told
DO NOT SCORE 1
48. Watches television or listens to radio for information about a particular area of interest N MAY BE SCORED
49. Goes to evening school or facility events with friends, when accompanied by an adult. N MAY BE SCORED
50. Independently weighs consequences of actions before making decisions
51. Apologizes for mistakes or errors in judgment
- 12, 13, 14 52. Remembers birthdays or anniversaries of immediate family members and special friends
53. Initiates conversations on topics of particular interest to others
54. Has a hobby
- 15 to 18 55. Repays money borrowed from caregiver
56. Responds to hints or indirect cues in conversation
57. Participates in nonschool sports. N MAY BE SCORED
58. Watches television or listens to radio for practical, day-to-day information. N MAY BE SCORED
59. Makes and keeps appointments
60. Watches television or listens to radio for news independently. N MAY BE SCORED
61. Goes to evening school or facility events with friends, without adult supervision. N MAY BE SCORED
62. Goes to evening nonschool or nonfacility events with friends, without adult supervision
63. Belongs to older adolescent organized club, interest group, or social or service organization
64. Goes with one person of opposite sex to party or public event where many people are present
65. Goes on double or triple dates
66. Goes on single dates

Count items before basal as 2, items after ceiling as 0

COMMENTS _____

8

INTERPERSONAL
RELATIONSHIPS
PLAY & LEISURE TIME
SCOPING SKILLS

COMMENTS

1	16	16	26
2			
3			
4			
	56	40	36

Sum of 2s, 1s, 0s page 8
Sum of 2s, 1s, 0s page 7
Number of Ns pages 7 and 8
Number of DKs pages 7 and 8
SUBDOMAIN RAW SCORE
(Add rows 1—4 above)

ITEM
SCORES
2 Yes, usually
1 Sometimes or partially
0 No, never
N No opportunity
DK Don't know

Note: The Motor Skills domain is for individuals 5:11:30 or under and optional for older individuals for whom a motor deficit is suspected. See Chapters 4 and 5 in the manual for procedures for administering and scoring the Motor Skills domain for individuals 6:0-0 or older.

- <1 1 Holds head erect for at least 15 seconds without assistance when held vertically in caregiver's arms
- 2 Sits supported for at least one minute
- 3 Picks up small object with hands, in any way
- 4 Transfers object from one hand to the other
- 5 Picks up small object with thumb and fingers
- 6 Raises self to sitting position and maintains position unsupported for at least one minute
- 7 Crawls across floor on hands and knees, without stomach touching floor
- 8 Opens doors that require only pushing or pulling
- 9 Rolls ball while sitting
- 10 Walks as primary means of getting around
- 11 Climbs both in and out of bed or steady adult chair
- 12 Climbs on low play equipment
- 13 Marks with pencil, crayon, or chalk on appropriate writing surface
- 14 Walks up stairs, putting both feet on each step
- 15 Walks down stairs, forward, putting both feet on each step
- 16 Runs smoothly, with changes in speed and direction
- 17 Opens doors by turning and pulling doorknobs
- 18 Jumps over small object.
- 19 Screws and unscrews lid of jar.
- 20 Pedals tricycle or other three-wheeled vehicle for at least six feet
N MAY BE SCORED
- 21 Hops on one foot at least once, while holding on to another person or stable object, without falling.
- 22 Builds three-dimensional structures, with at least five blocks.
- 23 Opens and closes scissors with one hand
- 3, 4+ 24 Walks down stairs with alternating feet, without assistance
- 25 Climbs on high play equipment
- 26 Cuts across a piece of paper with scissors.
- 27 Hops forward on one foot at least three times without losing balance.
DO NOT SCORE 1.
- 28 Completes non-inset puzzle of at least six pieces DO NOT SCORE 1
- 29 Draws more than one recognizable form with pencils or crayons
- 30 Cuts paper along a line with scissors.
- 31 Uses eraser without tearing paper.
- 32 Hops forward on one foot with ease. DO NOT SCORE 1.
- 33 Unlocks key locks
- 34 Cuts out complex items with scissors
- 35 Catches small ball thrown from a distance of 10 feet, even if moving is necessary to catch it
- 36 Rides bicycle without training wheels, without falling N MAY BE SCORED

Count items before basal as 2, items after ceiling as 0

COMMENTS _____

1 _____ Sum of 2s, 1s, 0s page 9

2 _____ Number of Ns page 9

3 _____ Number of DKs page 9

SUBDOMAIN RAW SCORE
(Add rows 1—3 above)

GROSS

FINE

MOTOR SKILLS DOMAIN

MALADAPTIVE BEHAVIOR DOMAIN

Note: The Maladaptive Behavior domain is for individuals 5-0-0 or older. Administration is optional.

ITEM SCORES
2 Yes, usually
1 Sometimes or partially
0 No, never
DO NOT SCORE N OR DK

PART 1

1. Sucks thumb or fingers.
2. Is overly dependent.
3. Withdraws.
4. Wets bed.
5. Exhibits an eating disturbance.
6. Exhibits a sleep disturbance.
7. Bites fingernails.
8. Avoids school or work.
9. Exhibits extreme anxiety.
10. Exhibits tics.
11. Cries or laughs too easily.
12. Has poor eye contact.
13. Exhibits excessive unhappiness.
14. Grinds teeth during day or night.
15. Is too impulsive.
16. Has poor concentration and attention.
17. Is overly active.
18. Has temper tantrums.
19. Is negativistic or defiant.
20. Teases or bullies.
21. Shows lack of consideration.
22. Lies, cheats, or steals.
23. Is too physically aggressive.
24. Swears in inappropriate situations.
25. Runs away.
26. Is stubborn or sullen.
27. Is truant from school or work.

A. PART 1 RAW SCORE
(Sum of 2s, 1s, 0s Part 1)

PART 2

Note: Part 2 is for individuals who will be compared only with supplementary norm groups.

28. Engages in inappropriate sexual behavior.
29. Has excessive or peculiar preoccupations with objects or activities.
30. Expresses thoughts that are not sensible.
31. Exhibits extremely peculiar mannerisms or habits.
32. Displays behaviors that are self-injurious.
33. Intentionally destroys own or another's property.
34. Uses bizarre speech.
35. Is unaware of what is happening in immediate surroundings.
36. Rocks back and forth when sitting or standing.

B. Sum of 2s, 1s, 0s Part 2

COMMENTS _____

PARTS 1 AND 2 RAW SCORE
(Add A and B)

COMMENTS

ABOUT THE INTERVIEW:

Respondent's estimate of the individual's functioning _____

Language used in the interview _____

Special characteristics of the individual _____

Estimate of rapport established with the respondent _____

Estimate of the respondent's accuracy _____

General observations _____

APPENDIX D

SUBJECTS' VABS RAW SCORES

VINELAND ADAPTIVE BEHAVIOR SCALE RAW SCORES FOR BOYS
WITH SLOW EXPRESSIVE LANGUAGE DEVELOPMENT

Subject #	Communication			Daily Living	Socialization	Motor Skills		
	Rep.	Exp.	Sum			Gross	Fine	Sum
006	15	08	23	21	32	22	10	32
007	20	11	31	25	33	20	09	29
015	22	16	38	22	36	16	12	28
026	19	18	37	42	39	25	11	36
039	16	10	26	26	38	21	11	32
041	20	12	32	27	37	21	09	30
053	20	11	31	38	38	19	14	33
060	22	11	33	35	38	25	15	40
083	14	04	18	15	29	16	09	25
084	17	08	25	27	31	18	12	30
085	17	08	25	34	36	21	15	36
086	20	11	31	21	38	19	10	29
087	22	10	32	26	38	24	10	34
090	18	07	25	34	37	25	12	37
091	23	12	35	37	37	27	17	45
092	24	14	38	46	41	26	14	40
093	16	11	27	24	37	17	12	29
094	20	13	33	26	40	22	13	35
097	20	11	31	28	39	21	09	30
098	20	09	29	28	37	22	10	32
100	22	12	34	40	42	25	13	38
103	22	10	32	35	38	24	13	37
105	20	09	29	30	38	26	11	36
112	24	08	32	33	36	18	12	30
114	19	10	29	35	37	24	11	35
115	19	09	28	22	38	24	11	35
116	21	10	31	36	34	22	11	33
119	23	08	31	28	37	26	11	37
207	23	18	41	25	30	25	13	38
211	17	09	26	25	39	21	13	38
212	21	13	34	32	36	27	11	38
225	18	16	34	36	38	22	12	34

VINELAND ADAPTIVE BEHAVIOR SCALE RAW SCORES FOR GIRLS
WITH SLOW EXPRESSIVE LANGUAGE DEVELOPMENT

Subject #	Communication			Daily Living	Socialization	Motor Skills		
	Rep.	Exp.	Sum			Gross	Fine	Sum
019	20	13	33	37	33	19	12	31
029	20	08	28	39	39	23	12	35
052	15	07	22	20	29	16	08	27
057	20	08	28	23	33	21	10	31
089	18	16	34	28	36	24	11	35
101	20	21	41	32	40	17	10	27
111	19	09	28	27	32	19	12	31
142	20	07	27	33	31	24	12	36
200	20	10	30	39	43	31	12	43
201	20	19	39	21	42	22	12	34
202	19	12	31	30	35	17	10	27
204	24	24	48	43	46	29	16	45
205	22	20	42	40	39	24	12	36
208	20	21	41	35	40	25	13	38
210	20	16	36	34	40	25	18	43
213	24	15	39	32	41	28	12	40
214	21	13	34	39	40	24	18	42
215	22	16	38	45	40	22	13	35
216	21	17	38	33	39	23	12	35
217	20	16	36	34	42	26	12	38
218	24	12	36	30	38	24	11	35
219	18	11	29	41	40	24	11	35
220	20	10	30	31	39	20	11	31
221	24	12	36	38	42	23	12	35
222	20	10	30	29	42	24	14	38
223	16	12	28	28	39	24	13	37
224	22	22	44	38	39	27	11	38
226	24	15	39	39	38	27	11	38
227	20	18	38	31	43	24	11	35

APPENDIX E

SUBJECTS' VABS STANDARD SCORES

VINELAND ADAPTIVE BEHAVIOR SCALE STANDARD SCORES
FOR BOYS WITH SLOW EXPRESSIVE LANGUAGE DEVELOPMENT

Subject #	Communication	Daily Living	Socialization	Motor Skills	Adaptive Behavior Composite
006	073	076	080	089	073
007	082	082	082	083	076
015	077	064	036	028	070
026	076	088	078	078	074
039	078	087	094	094	084
041	087	089	092	091	086
053	073	087	080	075	073
060	072	079	077	088	073
083	070	071	079	081	069
084	078	091	084	093	082
085	068	082	076	083	071
086	089	083	098	094	088
087	081	080	088	089	079
090	068	082	078	086	072
091	081	092	084	107	087
092	075	090	079	083	076
093	075	077	086	079	073
094	072	068	080	076	068
097	086	090	096	089	087
098	082	090	092	094	086
100	076	090	087	089	100
103	081	093	091	097	086
105	077	087	087	097	081
112	077	085	080	075	073

VINELAND ADAPTIVE BEHAVIOR SCALE STANDARD SCORES
FOR BOYS WITH SLOW EXPRESSIVE LANGUAGE DEVELOPMENT
(continued)

Subject #	Communication	Daily Living	Socialization	Motor Skills	Adaptive Behavior Composite
114	079	097	089	095	086
115	070	067	080	080	068
116	068	078	070	068	065
119	076	077	082	091	076
207	083	070	068	089	072
211	071	074	085	094	075
212	073	075	074	084	071
225	080	089	084	083	078

VINELAND ADAPTIVE BEHAVIOR SCALE STANDARD SCORES
FOR GIRLS WITH SLOW EXPRESSIVE LANGUAGE DEVELOPMENT

Subject #	Communication	Daily Living	Socialization	Motor Skills	Adaptive Behavior Composite
019	072	107	069	068	067
029	028	039	039	035	079
052	077	083	083	087	077
057	082	084	087	095	082
089	083	083	084	091	080
101	092	088	091	075	082
111	076	081	077	083	073
142	078	096	080	101	085
200	078	099	096	111	094
201	081	066	087	078	072
202	070	073	073	061	064
204	103	104	102	115	108
205	081	086	078	078	075
208	088	088	087	094	085
210	089	095	094	115	097
213	085	084	089	099	085
214	080	094	087	103	088
215	088	107	091	091	092
216	084	085	085	086	080
217	082	087	090	094	084
218	082	081	084	086	078
219	074	096	087	086	081
220	072	078	081	072	073
221	075	083	083	076	070
222	072	075	087	089	066
223	066	069	076	076	075

VINELAND ADAPTIVE BEHAVIOR SCALE STANDARD SCORES
FOR GIRLS WITH SLOW EXPRESSIVE LANGUAGE DEVELOPMENT
(continued)

Subject #	Communication	Daily Living	Socialization	Motor Skills	Adaptive Behavior Composite
224	087	087	081	089	086
226	081	088	080	089	079
227	088	087	096	091	087

APPENDIX F

SUBJECTS' VABS AGE EQUIVALENT SCORES

VINELAND ADAPTIVE BEHAVIOR SCALE AGE EQUIVALENT
SCORES (IN MONTHS) FOR BOYS WITH SLOW
EXPRESSIVE LANGUAGE DEVELOPMENT

Subject	DOMAINS								
	Communication			Daily Socialization		Motor Skills			Adaptive Behavior
#	Rep.	Exp.	Sum	Living		Gross	Fine	Total	Composite
006	15	12	13	16	14	22	16	20	16
007	22	15	13	18	15	20	14	17	17
015	30	19	20	17	17	16	20	17	18
026	19	20	19	26	19	25	18	23	22
039	16	14	15	18	18	21	18	20	18
041	22	16	17	19	18	21	14	18	18
053	22	15	17	24	18	19	24	20	19
060	30	15	18	22	18	25	26	26	21
083	14	06	11	13	12	16	14	15	13
084	17	12	14	19	13	18	20	18	16
085	17	12	14	22	17	21	26	23	19
086	22	15	17	16	18	19	16	17	17
087	30	14	17	18	18	24	16	21	19
090	18	11	14	22	18	25	20	23	18
091	35	16	18	24	18	28	30	29	22
092	47	14	20	28	21	26	24	26	24
093	16	15	15	18	18	17	20	17	17
094	22	14	18	18	20	22	22	22	20
097	22	16	17	19	19	20	14	17	18
098	22	13	16	19	18	22	16	20	17
100	30	16	18	25	21	23	22	24	22
103	30	14	17	22	20	24	22	23	21
105	22	13	16	20	18	26	18	23	19
112	47	12	17	21	17	18	20	18	18

VINELAND ADAPTIVE BEHAVIOR SCALE AGE EQUIVALENT
 SCORES (IN MONTHS) FOR BOYS WITH SLOW
 EXPRESSIVE LANGUAGE DEVELOPMENT
 (continued)

Subject	DOMAINS								
	Communication			Daily Socialization		Motor Skills			Adaptive Behavior
#	Rep.	Exp.	Sum	Living		Gross	Fine	Total	Composite
114	19	14	16	22	18	24	18	22	20
115	19	13	16	17	18	24	18	22	18
116	26	14	17	23	15	22	18	20	19
119	35	12	17	19	18	26	18	23	19
207	35	20	21	18	13	25	22	24	19
211	17	13	15	18	19	25	22	24	19
212	26	17	18	21	17	28	18	24	20
225	18	19	18	23	18	22	20	21	20

VINELAND ADAPTIVE BEHAVIOR SCALE AGE EQUIVALENT
SCORES (IN MONTHS) FOR GIRLS WITH SLOW
EXPRESSIVE LANGUAGE DEVELOPMENT

Subject #	Communication			Daily Living	Socialization	DOMAINS Motor Skills			Adaptive Behavior Composite
	Rep.	Exp.	Sum			Gross	Fine	Total	
019	22	17	18	33	15	19	20	19	19
029	22	17	18	24	19	23	20	22	20
052	15	11	13	16	12	16	12	14	14
057	22	12	16	17	15	21	16	19	17
089	18	19	18	19	17	24	18	22	19
101	22	22	21	21	20	17	16	16	20
111	19	13	16	19	14	19	20	19	17
142	20	11	15	21	13	24	20	23	20
200	22	14	16	24	22	35	20	29	23
201	22	21	20	16	21	22	20	21	20
202	19	16	17	20	16	17	16	16	17
204	47	24	26	27	25	31	28	30	27
205	30	21	22	25	19	24	20	23	22
208	22	22	21	22	20	25	22	24	22
210	22	19	19	22	20	25	32	29	23
213	47	18	20	21	21	29	20	26	22
214	26	17	18	24	20	24	32	28	23
215	30	19	20	28	20	22	22	22	23
216	26	20	20	21	19	23	20	22	21
217	22	19	19	22	21	24	20	24	22
218	47	16	19	20	18	24	18	22	20
219	18	15	16	25	20	24	18	22	21
220	22	14	16	20	19	20	18	19	19
221	47	16	19	24	21	23	20	22	22
222	22	14	16	19	21	24	24	24	20

VINELAND ADAPTIVE BEHAVIOR SCALE AGE EQUIVALENT
 SCORES (IN MONTHS) FOR GIRLS WITH SLOW
 EXPRESSIVE LANGUAGE DEVELOPMENT
 (continued)

Subject #	Communication			Daily Socialization		Motor Skills			Adaptive Behavior	
	Rep.	Exp.	Sum	Living		Gross	Fine	Total	Composite	
223	16	16	16	19	19	24	22	23	19	
224	30	23	23	24	19	28	18	24	23	
226	47	18	20	24	18	28	18	24	22	
227	22	20	20	20	22	24	18	22	21	