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

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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

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TABLE OF CONTENTS

| | PAGE |
|--|------|
| ACKNOWLEDGEMENTS | iii |
| LIST OF TABLES | vi |
| CHAPTER | |
| I INTRODUCTION | 1 |
| II REVIEW OF THE LITERATURE | 7 |
| Gender Differences in Normal Development | 8 |
| Daily Living Skills | |
| Socialization | |
| Motor Skills | |
| Speech and Language Skills | |
| Gender Differences in Communication and Related Disorders | 16 |
| III METHODS AND PROCEDURES | 23 |
| Subject Recruitment | 23 |
| Subject Description | 24 |
| Procedures | 26 |
| Instrumentation | 27 |
| Data Analysis | 28 |
| IV RESULTS AND DISCUSSION | 31 |
| Results | 31 |
| Discussion | 35 |
| V SUMMARY AND IMPLICATIONS | 39 |

| | |
|--|----|
| Summary | 39 |
| Implication | 40 |
| Research Implications | |
| Clinical Implications | |
| REFERENCES | 44 |
| APPENDICES | 51 |
| A SUBJECT RECRUITMENT QUESTIONNAIRE | 51 |
| B SUBJECT DEMOGRAPHIC DESCRIPTIONS | 53 |
| C VINELAND ADAPTIVE BEHAVIOR SCALE | 56 |
| D SUBJECTS' <u>VABS</u> RAW SCORES | 69 |
| E SUBJECTS' <u>VABS</u> STANDARD SCORES | 72 |
| F SUBJECTS' <u>VABS</u> AGE EQUIVALENT SCORES | 77 |

LIST OF TABLES

| TABLE | | PAGE |
|-------|--|------|
| I | SELD Group Descriptions at Intake | 26 |
| II | Means and Standard Deviations for Raw Scores on Dependent Measures | 30 |
| III | Means and Standard Deviations for Standard Scores on Dependent Measures | 32 |
| IV | Means and Standard Deviations for Age Equivalents on Dependent Measures | 32 |
| V | Two-Sample t -Test for Equality of Means | 34 |

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, responsivity, 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 Composite | Boys | 25.53 | 18.73 | 2.05 |
| | 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 |

ABOUT THE RESPONDENT:

Name _____ Sex _____
 Relationship to individual _____

ABOUT THE INTERVIEWER:

Name _____ Sex _____
 Position _____

DATA FROM OTHER TESTS:

Intelligence _____

 Achievement _____

 Adaptive behavior _____

 Other _____

REASON FOR THE INTERVIEW: _____

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.)

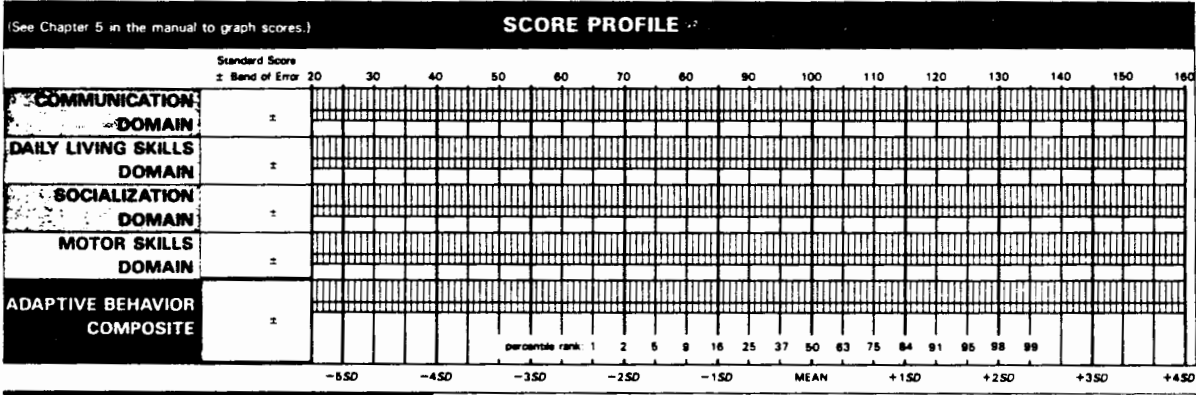
Vineland Adaptive Behavior Scales: INTERVIEW EDITION Survey Form

Individual's name _____ Chronological age _____

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

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

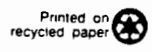
| SUBDOMAIN | Raw Score | Standard Score X=100, SD=15 Tables B.1 and B.2 | Band of Error % Confidence Table B.3 | National %ile Rank Table B.4 | Stanine Table B.4 | Supplementary Norm Group %ile Rank Table B.5 | Adaptive Level Tables B.6 and B.8 | Supplementary Norm Group Adaptive Level Tables B.7 and B.9 | Age Equivalent Tables B.10 and B.11 |
|---------------------------------------|-----------|--|---|------------------------------------|----------------------|---|--|--|--|
| | | | | | | | | | |
| COMMUNICATION DOMAIN | | | | | | | | | |
| Receptive | | | | | | | | | |
| Expressive | | | | | | | | | |
| Written | | | | | | | | | |
| COMMUNICATION DOMAIN SUM | | | ± | | | | | | |
| DAILY LIVING SKILLS DOMAIN | | | | | | | | | |
| Personal | | | | | | | | | |
| Domestic | | | | | | | | | |
| Community | | | | | | | | | |
| DAILY LIVING SKILLS DOMAIN SUM | | | ± | | | | | | |
| SOCIALIZATION DOMAIN | | | | | | | | | |
| 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 | | | ± | | | | | | |



| | | | | |
|--|--------------|-----------|-------------------------------|--|
| OPTIONAL MALADAPTIVE BEHAVIOR DOMAIN (Administer for ages 5-0-0 and older) | Part 1 | Raw Score | Maladaptive Level: Table B.12 | Supplementary Norm Group Maladaptive Level: Table B.13 |
| | Part 1 and 2 | | | |
| | | | | |

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

Recommendations _____



- ITEM SCORES
 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

RECEPTIVE
EXPRESSIVE
WRITTEN

| | | | |
|---|----|----|----|
| 1 | 2 | 20 | 46 |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| | 26 | 62 | 46 |

Sum of 2s, 1s, 0s page 3

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

Number of Ns pages 2 and 3

Number of DKs pages 2 and 3

SUBDOMAIN RAW SCORE
(Add rows 1—4 above)

RECEPTIVE

EXPRESSIVE

WRITTEN

COMMUNICATION DOMAIN

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

PERSONAL
DOMESTIC
COMMUNITY

COMMENT:

- 34 Cares for all toileting needs, without being reminded and without assistance DO NOT SCORE 1
- 35 Looks both ways before crossing street or road
- 36 Puts clean clothes away without assistance when asked
- 37 Cares for nose without assistance DO NOT SCORE 1
- 38 Clears table of breakable items
- 39 Dries self with towel without assistance.
- 40 Fastens all fasteners DO NOT SCORE 1
- 41 Assists in food preparation requiring mixing and cooking
- 42 Demonstrates understanding that it is unsafe to accept rides, food, or money from strangers
- 43 Ties shoelaces into a bow without assistance
- 44 Bathes or showers without assistance DO NOT SCORE 1
- 45 Looks both ways and crosses street or road alone
- 46 Covers mouth and nose when coughing and sneezing
- 47 Uses spoon, fork, and knife competently DO NOT SCORE 1.
- 48 Initiates telephone calls to others N MAY BE SCORED
- 49 Obeys traffic lights and Walk and Don't Walk signs N MAY BE SCORED
- 50 Dresses self completely, including tying shoelaces and fastening all fasteners. DO NOT SCORE 1
- 51 Makes own bed when asked.
- 52 States current day of the week when asked
- 53 Fastens seat belt in automobile independently N MAY BE SCORED
- 54 States value of penny, nickel, dime, and quarter
- 55 Uses basic tools
- 56 Identifies left and right on others
- 57 Sets table without assistance when asked
- 58 Sweeps, mops, or vacuums floor carefully, without assistance, when asked
- 59 Uses emergency telephone number in emergency. N MAY BE SCORED
- 60 Orders own complete meal in restaurant. N MAY BE SCORED
- 61 States current date when asked.
- 62 Dresses in anticipation of changes in weather without being reminded
- 63 Avoids persons with contagious illnesses, without being reminded.

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Count items before basal as 2, items after ceiling as 0 Sum of 2s, 1s, 0s page 5

COMMENTS _____

PERSONAL
DOMESTIC
COMMUNITY

DAILY LIVING SKILLS DOMAIN

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

| ITEM | DESCRIPTION | PERSONAL | DOMESTIC | COMMUNITY |
|------|--|----------|----------|-----------|
| < 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 | Urinate 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.

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

COMMENTS _____

PERSONAL

DOMESTIC

COMMUNITY

DAILY LIVING SKILLS DOMAIN

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

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

COMMENTS _____

| | | | | | |
|--|---|----|----|----|--|
| Count items before basal as 2, items after ceiling as 0. | 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
 2 Yes, usually
 1 Sometimes or partially
 0 No, never
 N No opportunity
 DK Don't know

| ITEM | SCORES | DESCRIPTION | INTERPERSONAL RELATIONSHIPS | PLAY & LEISURE TIME | COPING SKILLS | COMMENTS |
|------|--------|--|-----------------------------|---------------------|---------------|----------|
| 1 | | Looks at face of caregiver | | | | |
| 2 | | Responds to voice of caregiver or another person | | | | |
| 3 | | Distinguishes caregiver from others | | | | |
| 4 | | Shows interest in novel objects or new people | | | | |
| 5 | | Expresses two or more recognizable emotions such as pleasure, sadness, fear, or distress | | | | |
| 6 | | Shows anticipation of being picked up by caregiver | | | | |
| 7 | | Shows affection toward familiar people | | | | |
| 8 | | Shows interest in children or peers other than siblings | | | | |
| 9 | | Reaches for familiar person | | | | |
| 10 | | Plays with toy or other object alone or with others | | | | |
| 11 | | Plays very simple interaction games with others | | | | |
| 12 | | Uses common household objects for play | | | | |
| 13 | | Shows interest in activities of others | | | | |
| 14 | | Imitates simple adult movements, such as clapping hands or waving good-bye, in response to a model | | | | |
| 15 | | Laughs or smiles appropriately in response to positive statements | | | | |
| 16 | | Addresses at least two familiar people by name | | | | |
| 17 | | Shows desire to please caregiver | | | | |
| 18 | | Participates in at least one game or activity with others | | | | |
| 19 | | Imitates a relatively complex task several hours after it was performed by another | | | | |
| 20 | | Imitates adult phrases heard on previous occasions | | | | |
| 21 | | Engages in elaborate make-believe activities, alone or with others | | | | |
| 22 | | Shows a preference for some friends over others | | | | |
| 23 | | Says "please" when asking for something | | | | |
| 24 | | Labels happiness, sadness, fear, and anger in self | | | | |
| 25 | | Identifies people by characteristics other than name, when asked | | | | |
| 26 | | Shares toys or possessions without being told to do so | | | | |
| 27 | | Names one or more favorite television programs when asked, and tells on what days and channels the programs are shown N MAY BE SCORED | | | | |
| 28 | | Follows rules in simple games without being reminded | | | | |
| 29 | | Has a preferred friend of either sex | | | | |
| 30 | | Follows school or facility rules | | | | |
| 31 | | Responds verbally and positively to good fortune of others | | | | |
| 32 | | Apologizes for unintentional mistakes | | | | |
| 33 | | Has a group of friends | | | | |
| 34 | | Follows community rules | | | | |
| 35 | | Plays more than one board or card game requiring skill and decision making | | | | |
| 36 | | Does not talk with food in mouth | | | | |
| 37 | | Has a best friend of the same sex | | | | |

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

40 24 10

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

INTERPERSONAL RELATIONSHIPS

PLAY & LEISURE TIME

COPING SKILLS

COMMENTS _____

SOCIALIZATION DOMAIN

SOCIALIZATION DOMAIN

ITEM 2 Yes, usually
 1 Sometimes or partially
 SCORES 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.

INTERPERSONAL RELATIONSHIPS

PLAY & LEISURE TIME

COOPING SKILLS

COMMENTS

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

1 16 16 26 Sum of 2s, 1s, 0s page 8

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

3 _____ Number of Ns pages 7 and 8

4 _____ Number of DKs pages 7 and 8

56 40 36

SUBDOMAIN RAW SCORE
 (Add rows 1—4 above)

COMMENTS _____

8

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

1 _____ 40 32 Sum of 2s, 1s, 0s page 9

2 _____ Number of Ns page 9

3 _____ Number of DKs page 9

40 32

SUBDOMAIN RAW SCORE
(Add rows 1-3 above)

COMMENTS _____

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

COMMENTS

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

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 # | Communication | | | Daily Socialization | | DOMAINS 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 Living | Socialization | Motor Skills | | | Adaptive Behavior Composite |
|-----------|---------------|------|-----|--------------|---------------|--------------|------|-------|-----------------------------|
| | Rep. | Exp. | Sum | | | Gross | Fine | Total | |
| 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 |