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Robin J. Webb

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ABSTRACT

Easily Administered Recognition of Linguistically-Handicapped Youngsters (EARLY)

by Robin J. Webb

This study investigates the feasibility of involving parents as evaluators using an objective screening test for their children who are 36 to 42 months of age. A more available and nonthreatening assessor is needed as physicians, dentists and other allied health professionals who are typically used to screen children for speech, language and hearing have not been effective with this age group. This is partially due to the limited contacts they have with these children and the environmental limitations for eliciting an adequate speech and language sample (Behrens, 1978; Webb, 1978; Hirsch, 1981).

An objective-type screening instrument has been designed specifically for parent administration. Commonly used screening items were selected and analyzed to determine which were the best discriminators for a pass/fail score, thus reducing scoring error and interpretation difficulties.

Parents were found to be capable evaluators when giving the Easily Administered Recognition of Linguisti-

cally-Handicapped Youngsters (EARLY). The EARLY also had a high correlation with the Preschool Language Scale (PLS) (Zimmerman, Steiner, and Evatt, 1979). By using the EARLY, parents will be alerted to speech and language problems and will be able to seek professional intervention at an early age. With this early identification, the speech-language pathologist will be able to take advantage of the critical language-learning time period which occurs between the ages of 24 and 48 months (Eisenson, 1972; Bzoch and League, 1971).

LOMA LINDA UNIVERSITY

Graduate School

EASILY ADMINISTERED RECOGNITION OF
LINGUISTICALLY-HANDICAPPED YOUNGSTERS

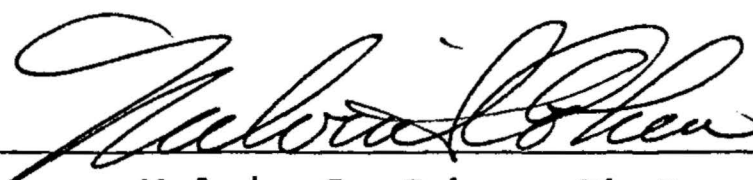
by

Robin J. Webb

A Thesis in Partial Fulfillment of the
Requirements for the Degree Master of Science
in the Field of Speech Pathology

August 1982


Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Master of Science.



Melvin S. Cohen, Ph.D.
Associate Professor of Speech Pathology



E. Evelyn Britt, Sc.D.
Associate Professor of Speech
Pathology and Audiology



Kay Kuzma, Ed.D.
Associate Professor of Health Science

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CHAPTER I

Introduction

The intent of this study is to determine if parents, without pre-training, can be reliable administrators of an objective speech and language screening test for their children between 36 to 42 months of age. Each parent's performance was compared to test results obtained by a licensed speech-language pathologist. The parents' findings using the experimental screening test were compared with the Preschool Language Scale (Zimmerman, Steiner, and Evatt, 1979), a currently standardized assessment scale. All children who served as subjects (the "target population") in this study were between the ages of 36 and 42 months.

Importance of early identification for children who may have speech, language, and/or hearing problems cannot be stressed strongly enough. "Early intervention is necessary for normal development of speech and language to appear," states Wilkerson (1976). Early identification can mean a significant difference in the child's social adjustment, academic success, personal fulfillment, and ability to acquire normal or near-normal speech and language skills (Kluppel, 1972; Masland, 1972; Van Riper,

1972, Task Force, 1973; Riley and Riley, 1974).

The critical period for speech and language acquisition is considered to be between the ages of 36 to 48 months. It is at this time that speech and language are developing at an explosive rate. After this time period, speech and language remediation has been documented by such studies as Hull and Hull (1973), Riley and Riley (1974), and Wilkerson (1976). Their findings show that between 2 and 8 percent of all North American children need speech and/or language intervention.

There are several programs which are intended to identify speech-, language-, and/or hearing-impaired children: the school or Head Start/State Preschool program; the California State health screening program; private physicians; and speech and hearing clinic.

The Head Start/State preschool program serves children between the ages of 3 and 5 years or up to the age at which the child is enrolled in a kindergarten program. However, this program is designed to serve primarily low-income families. It also serves limited numbers of handicapped children, including speech-, language-, and hearing-impaired children. This is a state and federally funded program. The teachers screen the children for speech and language development at the beginning of the year. Most of the children are placed in classrooms which provide a general curriculum of socialization and developmental en-

richment. The children with severe problems are linked with community resources for additional speech and language services. Although this program is capable of providing services for a large number of children, it is dependent upon parents requesting the program for their child and the availability of state and federal funds (Emery, 1981). This further implies the need for parents to have a means which will help alert them to the need for early remediation and which will provide them with information about where such services might be obtained.

Physicians, dentists, and allied health professionals have been considered to be in an excellent position to make an early identification of possible speech and/or language disorders. They are usually the first professionals to see the child either through the office or at well-baby clinics (Richardson, 1972; Downs, 1974; Kulig, 1975; Mason et al., 1977).

The Physician's Developmental Quick Screen for Speech Disorders (PDQ) was designed so that physicians could screen children's communication skills when they come into the office for routine medical examinations. The PDQ screens children from 16 to 72 months of age, and it should take no longer than 5 minutes to administer. The physician is required to complete a multi-media self-instructional packet before he is considered qualified to administer the test and to make subjective decisions concerning a child's

speech and language development (Kulig, 1975).

The PDQ should be an adequate screening device. However, it can only be valuable if it is put to use. It has been reported that physicians tend to rely on the history of the child's developmental milestones rather than on the available standardized tests (Frankenburg and Dodds, 1967). There also exists the idea that for the percentage of patients who would be referred, the physician cannot justify adding 5 minutes to the examination time to administer the screening test. The additional time for examination would reduce the number of patients seen per hour and would result in a fee increase for each patient served (Behrens, 1977; Cohen, 1977).

There is no evidence at this time that the PDQ, or any similar instrument, is consistently being used by physicians to screen for speech and language disorders among children in the geographical areas studied under the present investigation (the Inland Empire counties of San Bernardino and Riverside, California). Only 18 percent of the physicians randomly interviewed reported that they routinely check for speech, language, or hearing problems. None were using the PDQ or any other standardized instrument. The other 82 percent relied on the developmental case history of the parent to alert them to a possible problem (Webb, 1978).

In their journals dentists are provided speech screen-

ing procedures and guidelines to follow (Mason et al., 1977). However, the screening tests are mostly for children over 3 years of age, and their purpose is specifically to assess neuromotor and articulation skills. Therefore, children with language difficulties might not be identified by such tests.

The Early and Periodic Screening for Diagnosis and treatment (EPSDT) is a program used in the Child Health and Disability Prevention program. This service provides

. . .

. . . health education, periodic screening, referral for further diagnosis and treatment, follow-up record keeping, evaluation and physical procedures related to a community-based program of early identification and referral for treatment of children with potentially handicapping conditions. (California Administrative Code, 1979)

This program appears to reach a vast number of children in need of speech and language remediation. Although the EPSDT program specifically screens for 22 health disorders, the identification of a speech and/or language disability must be made subjectively during the hearing screening or assessment of the child's overall developmental level. It has been found that the atmosphere in which the screening is being conducted (including the child's being vaccinated and provided with other medical services that may be needed) is not conducive for eliciting spontaneous verbalization for the examiner to observe (Gregory, 1977). This might also explain why physicians

and dentists are not screening children for speech or language problems.

It would appear that early intervention programs are in need of an indirect screening device which either an allied health professional or parent could administer. This device should be simple to administer and not require any training or materials other than those provided in the test. Inasmuch as the parent is probably the adult who is least threatening to the child, it would appear that he/she would be the most desirable test administrator.

The statistics provided by the Riverside County Child Health and Disability Prevention Program (CHDP) show that of the 20,931 children, ages birth to 21 years, screened in Riverside County for the fiscal year 1979-1980, a total of 29, or .001 percent, were referred for speech and language disorders. Twenty-seven of these children followed through on the referral. Thirty-two, or .002 percent, were referred for hearing evaluations. Only 29 followed through on the referral (Hirsch, 1981). These figures do not represent those children who were referred for remedial services but who failed to keep or schedule an appointment. Thus, some of the effectiveness of the screening program was defeated.

According to the literature (Bzoch and League, 1971; Wadsworth, 1971; Eisenson, 1972), approximately 8 percent of the child population can be expected to need some form

of speech or language remediation. Therefore, case referral in Riverside County for the 1979-1980 fiscal year should have identified approximately 1,674 communicatively-handicapped youngsters. If the conservative 2 percent figure is used, there still should have been at least 418 severely impaired children identified and referred. It is evident that the EPSDT is not adequately identifying or referring children in need of speech, language, and/or hearing services.

It has been verified that parents can be valuable and reliable informants when they are being interviewed by qualified professionals (Britt, 1963; Doll, 1965; Mecham, Jex and Jones, 1971; MacDonald, 1978; Roman, 1980). Several instruments have also been designed for parents. However, all are subjective questionnaires requiring parents to recall behavior rather than elicit a specific behavior (Doll, 1965; Masland, 1972; Riley and Riley, 1974; MacDonald, 1978; PSI 107A X 1 Sorority and ASHF, 1981). Only the Riley Speech Disorder Scale (Riley and Riley, 1974) and the "How Does Your Child Hear and Talk" pamphlet (PSI 107A X 1 Sorority and ASHF, 1981) provide interpretive scores, and these instruments are dependent upon physicians or clinics requesting them for dissemination.

PURPOSE OF THE PRESENT STUDY

The purpose of this study was to design an objective-type of screening test which parents can use to evaluate their children's observable speech, language, and hearing behaviors. It was also the purpose of this study to develop a screening instrument which will be reliable when compared to a currently standardized instrument such as the Preschool Language Scale (Zimmerman, Steiner, and Evatt, 1979).

HYPOTHESES

Null hypothesis 1. There is a significant difference in the speech and language assessment results obtained by parents versus speech pathologists when evaluating the same child's communication skills with the same objective screening test.

Null hypothesis 2. When compared to the standardized Preschool Language Scale (Zimmerman, Steiner, and Evatt, 1979) the EARLY screening test does not provide reliable information regarding the speech, language, and hearing development of children between the ages of 36 to 42 months.

Lack of rejection of the null hypotheses would indicate that this parent-administered speech and language screening test would not be a useful clinical tool for early identification of communicatively-handicapped children.

CHAPTER II

Review of the Literature

This researcher reviewed a total of 19 speech and language screening tests, developmental charts, and articulation tests in order to find the most predictive screening items which could be used for the target population. Each instrument contained items which were specifically designed and standardized for the target population. Because of the limited number of screening devices available to assess articulation and hearing in this age group, only two articulation tests and one hearing instrument are included in this review.

Each screening tool was analyzed for test design, standardization techniques, and criteria typically used in eliciting and evaluating the desired speech and language responses. The tests which were reviewed are listed alphabetically with the acronym which will be used in referring to them in the text. There follows an analysis of each instrument:

Brigance TM Diagnostic Inventory of Early

Development (Brigance)

Communication Evaluation Chart (CEC)

Denver Articulation Screening Exam (DASE)

Denver Developmental Screening Test (DDST)

Edinburgh Articulation Test (EAT)
Houston Test for Language Development (HOUSTON)
How Do Children Become Able to Talk
How Does Your Child Hear and Talk
Learning Accomplishment Profile (LAP)
Oliver Parent Administered Communication
Inventory (OLIVER)
Physician's Developmental Quick Screen for
Speech Disorders (PDQ)
Preschool Language Scale (PLS)
Receptive-Expressive Emergent Language Scale (REEL)
Riley Speech Disorder Scale (Riley)
Sanders Scale (Sanders)
Templin Darley Tests of Articulation, Second
Edition (Templin)
Utah Test of Language Development (Utah)
Valett Developmental Survey of Basic Learning
Abilities (Valett)
Verbal Language Development Scale (VLDS)

BRIGANCE TM DIAGNOSTIC INVENTORY OF EARLY DEVELOPMENT
(Brigance, 1978)

I. Test Design

This instrument is intended for administration by a paraprofessional with professional supervision and does not require specialized training.

Methods that may be used in the assessment procedure include the parent interview, class or group situations, observation, individual assessment, and engagement of the child in conversation. The examiner determines the method or combination of methods to be used by considering the child's age, the testing situation, and the overall needs of the child. The purpose of each method is as follows:

A. Parent Interview: This is used with the young children for the areas of syntax, social speech, and verbal directions.

B. Class or Group Situations: These are used for evaluating social speech, singing, and the syntax of a child in a school setting.

C. Observations: This method is used to determine how a child follows directions or if the child is able to follow directions.

D. Individual assessment: This is used for digit and sentence memory tasks as well as for picture vocabulary items.

E. Engagement of the Child in Conversation: This is used for assessing sentence length and for personal data.

II. Normative Data

The Brigance TM is a criterion referenced test. The items are based on observable behaviors and are sequenced by task analysis, correlated with child development. Curric-

ulum objectives can then be applied directly to individualized instruction. The standardization of developmental items and ages given are based on previous tests in which the age norms are published.

III. Item Analysis

A. Verbal Directions (36 months)

1. Procedure (for interview): The examiner asks the informant to identify the directions they think the child will follow easily (75 percent of the time).

Examples:

- a. "Bring me the ball?"
- b. "Put it on the chair?"

2. Procedure (for performance): The child must be familiar with all of the objects being used. The examiner does not gesture or pause after each direction for the child's response.

Examples:

- a. Say: "Bring me the pencil."
- b. Say: "Stand by the chair."

3. Criterion: Discontinue after two consecutive failures.

B. Picture Vocabulary (36 months)

1. Procedure (for performance): The examiner shows the child black and white drawings, with nine drawings to a page (cup, boy, car, nail, pencil, wagon, sock, hammer, fish).

Examples:

a. Say: "Show me the _____."

b. Say: "Find the _____."

2. Criterion: Discontinue after three consecutive misses.

C. Repetition of Numbers (30 to 48 months)

1. Procedure (for performance): There are no additional materials. The examiner may not repeat the instruction.

Trial Examples:

a. Say: "Listen. Say, 'three'."

Examples for the 30-month level, say:

a. "Now, say, 'eight - two - five'."

b. "Now, say, 'two - eight - three'."

Examples for 48-month level, say:

a. "Now, say, 'seven - two - five - four'."

b. "Now, say, 'nine - six - five - seven'."

2. Criterion: To pass this item, one of the two series at the child's closest age level must be repeated exactly.

D. Sentence Memory (36 to 42 months)

1. Procedure (for performance): The examiner needs no other materials than the given sentences. There are two sets of sentences per age level. The examiner tells the child, "I want you to say exactly what I say."

Examples:

- a. Say: "Listen. Say, 'big boy/girl'.
That's good."

Examples for five syllables, say:

- a. "Say, 'The dog can run fast'."
- b. "Say, 'It is cold and may rain'."
- c. "Say, 'The ball is red and blue'."

Examples for six syllables, say:

- a. "Say, 'Little birds can run and fly'."
- b. "Say, 'The red car went down the road'."

Examples for seven syllables, say:

- a. "Say, 'Betty can run and jump rope'."
- b. "Say, 'He can write his name and address'."

2. Criterion: The child must repeat the sentence exactly as it is written at the appropriate age level. Discontinue after determining the longest sentence the child is able to accurately repeat at his/her age level. If the first sentence of each set is correctly repeated, the examiner goes on to the first sentence of the next set. If the child should miss the first sentence, the examiner gives the second. Credit is given if one of each two sentences is repeated verbatim. Objectives are given for skills not mastered within a child's age level.

E. Syntax (36 to 42 months)

1. Procedure (for parent interview and child observation: The examiner asks the following questions or

makes the following observations:

Examples for 36 months, say or observe:

- a. "Does ____ use negative phrases other than no, such as 'I never', 'I can't', 'I won't'?"
- b. "Does ____ use plurals other than by adding 's, such as 'feet', not 'foots', and 'mice', not 'mouses'?"
- c. "Does ____ ask questions such as 'who', 'why', and 'how'?"

2. Criterion: If the child does not have these skills, objectives for remediation are provided.

F. Social Speech

1. Procedure (for interview or observation):

The examiner asks the informant the questions which are provided or uses them as guidelines for observing these behaviors. Cultural bias is considered and questions altered accordingly.

Child delivers a simple message.

Examples for 36 months, ask:

- a. "Does ____ deliver a message which might involve, for example, going to the garage and telling daddy dinner is ready?"

- b. "Does ____ show an interest in the conversation of others?"

Child responds and makes verbal greetings.

Example for 36 months, ask:

- a. "Does ____ greet people with 'hi' or 'how are you' without being reminded?"

Example for 42 months, ask:

- a. "Does ____ adequately tell about an experience in which three or four events occur in a particular order?"

2. Criterion: The child must exhibit these behaviors to pass.

G. Length of Sentence (36 months)

1. Procedure: The examiner observes the child in either an assigned task or informally. The examiner should provide situations, topics, or items of interest which will encourage the child to respond with sentence-type answers or statements. A minimum of ten typical sentences are necessary to determine the "average" number of words per sentence.

2. Criterion: A minimum of four words per sen-

tence is necessary at the 36-month level.

H. Personal Data (36 months)

1. Procedure (for performance): The examiner is instructed to check the information with a reliable source.

Example for age, ask:

a. "How old are you?"

Example for sex, ask:

b. "Are you a boy or a girl?"

2. Criterion: Accuracy can be checked by asking the child these questions several times throughout the next two weeks. Discontinue after failing two consecutive skills. Skills are listed in order of their expected mastery level.

I. Singing (36 months)

1. Procedure (for parent interview or child observation): A group activity may be used. The observer should note: Does the child know a few songs appropriate for his/her age level completely?

Examples for parent interview, ask:

a. "What are some of the reactions
_____ has to songs or music?"

b. "Does _____ listen to music and/or
sing?"

2. Criterion: Credit is given if the child is able to demonstrate mastery of this skill. Discontinue after two consecutive skills are missed. The skills are

are listed according to expected mastery levels.

J. Hearing (24 to 36 months)

1. Procedure: This section is assessed by observation. The examiner determines why a 2- or 3-year-old is not talking. He/She decides whether the child has normal intelligence, is understanding the questions, or if the child is not hearing well. There are no specific directions on how this is done.

2. Criterion: The child passes if he/she does not demonstrate hearing inadequacy. This is subjectively determined by the examiner.

K. Voice (24 to 26 months)

1. Procedure: The examiner makes note of the child's vocal quality throughout the examination.

2. Criterion: The child passes if the examiner does not note abnormal vocal quality.

L. Articulation (36 months)

No specific items were listed at this level in the protocol; however, there were notations in the introduction that the m, n, p, h, and w sounds should be mastered by the 36-month level.

1. Procedure: All pictures are presented one at a time.

2. Criterion: Credit is given to each correctly identified target phoneme until three items are consecutively missed.

COMMUNICATIVE EVALUATION CHART

(Anderson, Miles, and Natheny, 1963)

I. Test Design

This is an assessment protocol in the form of a chart. It is designed to provide an overall look at the child's abilities and disabilities. It is a subjective instrument which is intended to be used as a quick appraisal by many specialists in related fields to help them determine the need for further referral to a speech-language pathologist.

II. Normative Data

The chart was organized and evaluated over a 4-year period. The acquisition levels were compiled from various traditional sources. Some of the items were included because of the author's belief that these items are diagnostically significant in working with young children. No other statistical information is available.

III. Item Analysis

A. Language (36 months)

1. Procedure: There are no pictures provided or directions for selecting pictures.

a. Can he/she identify usage of things in pictures?

Examples:

(1) "Show me the one that is good to eat."

(2) "Show me the one that you wear."

(3) "Show me the one that flies."

- b. Tells his/her own sex.
- c. Holds up fingers to signify age.
- d. Repeats 5-, 6-, or 7-syllable sentences.
- e. Can tell how simple objects are used.
- f. Names objects: pencil, car, key.
- g. Has a vocabulary of 500 to 1000 words.
- h. Uses adjectives and prepositions.

B. Articulation

- 1. Has 50 to 75 percent use of consonants.
- 2. Criterion: Each item is marked + (the item is present), - (the item is not present), or ± (the item is fluctuating). If there are several - or ± markings, the examiner should take this as a warning that a more extensive diagnostic examination may be necessary.

DENVER ARTICULATION SCREENING EXAM

(Drumwright, 1971)

I. Test Design

This is an imitation-type test which was designed to screen children 2 years 6 months to 6 years of age for articulation disorders. Thirty-four sounds were chosen which the 1957 Templin study found to be mastered by 85 percent of the children at the 6-year level. This assessment instrument was intended to be used not only by speech

pathologists but also by doctors, nurses, teachers and paraprofessionals who are involved with children.

II. Normative Data

Developmental norms were established for anglo, black, and hispanic cultural groups. The sample was taken in the Denver, Colorado area. Children ranged from 2 years 4 months to 6 years of age. There were 1,450 children from anglo, black and hispanic backgrounds in the study.

III. Item Analysis

The examiner says each of the twenty-two stimulus words on the test form. He/she tells the child to repeat each word after him. The examiner says: "If I say car, then you say car. Now say . . . (the following:)"

- | | |
|-------------------------|-----------------------------|
| 1. <u>t</u> able | 12. vac <u>u</u> um |
| 2. sh <u>i</u> rt | 13. <u>y</u> arn |
| 3. <u>d</u> oor | 14. m <u>o</u> ther |
| 4. tr <u>u</u> nk | 15. <u>t</u> winkle |
| 5. <u>j</u> umping | 16. <u>w</u> agon |
| 6. zip <u>per</u> | 17. <u>g</u> um |
| 7. <u>g</u> rapes | 18. <u>h</u> ouse |
| 8. <u>f</u> lap | 19. <u>p</u> encil |
| 9. <u>t</u> humb | 20. <u>f</u> ish |
| 10. to <u>o</u> thbrush | 21. <u>l</u> ea <u>f</u> |
| 11. <u>s</u> ock | 22. <u>c</u> ar <u>r</u> ot |

Each underlined sound or blend is to be scored. The child's speech intelligibility is also scored by the exami-

ner, circling one of the following items which summarizes the child's overall performance:

1. Easy to understand
2. Understandable half the time
3. Not understandable
4. Cannot evaluate.

2. Criterion: The child must receive a 23 percentile score to pass. This is a raw score of 15 out of a possible 30 for the child of 36 to 41 months. In order to pass the DASE, the intelligibility score for a child 3 years and older must also be "Easy to understand".

The following is a breakdown of the phonemes which were used on the DASE, and the sound-positions, according to the age at which 75 percent of the children in the study were able to correctly produce the sound. Exceptions are listed and the age at which the sound is achieved at 75 percent is given when one or more of the study groups achieved the sound as a slightly slower rate than the others.

<u>Position</u>	<u>Phoneme</u>	<u>Age</u>	<u>Ethnic Exception</u>
(i)	/t/	2.5	B - by-3.5
(i)	/d/	2.5	
(i)	/m/	2.5	
(i)	/w/	3.0	
(f)	/m/	3.0	
(f)	/n/	3.0	
(i)	/h/	3.0	
(i)	/p/	2.5	

<u>Position</u>	<u>Phoneme</u>	<u>Age</u>	<u>Ethnic Exception</u>
(i)	/g/	3.0	B - by-3.5
(f)	/f/	3.0	B, H - by-3.5
(i)	/f/	3.0	B - by-3.5
(f)	/ngk/	3.0	B, H - by-3.5
(i)	/l/	3.5	A, B - by-4.0

Legend

B = Black; H = Hispanic; A = Anglo
 (i) - initial; (f) = final

DENVER DEVELOPMENTAL SCREENING TEST

(Frankenburg, Dodds, and Fandall, 1970)

I. Test Design

This is an objective-type of instrument, designed for professionals in child care, as well as lay personnel trained to administer the test.

II. Normative Data

The standardization population was 1,036 Denver children. A preliminary study was run to determine which test items were the best indicators of a child's development. The children were from 2 weeks to 6 years of age.

III. Item Analysis

A. Use of plurals (38 months)

1. Procedure: Three blocks are placed in front of the child on a cleared table. The examiner asks: "What are these?"

2. Criterion: The child passes if he/she answers "blocks." He uses "s" to indicate more than one block. If this cannot be observed, the child can pass on the parent report that he uses "s" on the end of words to indicate more than one of anything. The "s" does not have to be pronounced clearly for the child to pass.

B. Gives First and Last Name (38 months)

1. Procedure: The child is asked: "What is your name?" If he/she gives only his/her first name, he/she is asked to give his/her last name or both names.

2. Criterion: The child passes if he/she gives understandable names. Any nicknames are acceptable for first names. If this cannot be observed, the parent can report if the child can give his/her first and last names without hints.

C. Comprehends "Cold," "Tired," and "Hungry" (41 months)

1. Procedure: The child is asked (one at a time): "What do you do when you are tired?" Acceptable responses are: "Go to sleep . . . Sit down . . . Rest." "What do you do when you are cold?" Acceptable responses are: "Put on a coat . . . Go inside . . . Turn up the furnace." "What do you do when you are hungry?" Acceptable responses are: "Eat. . . Have supper . . . Ask for something to eat."

2. Criterion: The child passes if he/she gives logical answers for two of the three questions.

D. Recognizes Three Colors (36 months, 50 percent; 43 months, 75 percent)

1. Procedure: Red, blue, green, and yellow blocks are placed together on the table in front of the child. He is told to "point to" or "give me" the red block, blue block, etc. If the child is handling the blocks to the examiner, the block is replaced on the table after each response. The child is not to know whether or not his responses are correct and he is not to be asked to name the colors.

2. Criterion: The child passes if he/she correctly identifies two of the four colors at 36 months of age or three of the four colors correctly if he/she is 43 months old. This item may be passed if the report of the parent indicates that the child is able to point to two or three of the four colors shown.

E. Comprehends Three Prepositions (37 to 40 months)

1. Procedure: The examiner tells the parent not to move and then gives the child a block and instructs him/her: "Put the block on the table; Put the block under the table; Put the block in front of mommy's chair; Put the block behind your chair." The directions are given one at a time and an incorrect response is not to be corrected.

2. Criterion: The child passes if he/she correctly follows three of the four directions.

F. Opposite Analogies (38 months)

1. Procedure: The examiner must be sure the child is listening to him/her. He/she then says (one sentence at a time): "Fire is hot; ice is _____?" Acceptable responses are: "Cold . . . Cool . . . Freezing." Unacceptable responses are: "Not wet . . . Melts . . . Water." "Mother is a woman; Dad is a _____?" Acceptable response is "Man." Unacceptable responses are: "Daddy . . . Boy . . . Husband." "A horse is big; a mouse is _____?" Acceptable responses are: "Little . . . Small . . . Tiny." Unacceptable responses are: (no examples). Each sentence may be repeated three times if necessary.

2. Criterion: The child passes if he/she gives an appropriate opposite word in at least two of the three analogies.

EDINBURGH ARTICULATION TEST

(Anthony et al, 1971)

I. Test Design

The EAT is designed to be administered by a professional speech pathologist skilled in phonetic transcription. This is an objective-type instrument with colored artist drawings depicting the stimulus items. The test is presented as a naming game and the stimulus pictures are

presented in a deliberate random order. Modeling is acceptable, but must be noted on the score sheet as a repeat.

II. Normative Data

Standardization was based on a sample of 510 children ages 3 to not yet 6 years. They were representative of proportionate socioeconomic populations of England.

III. Item Analysis

1. Procedure: The examiner offers to show the child pictures in the book and invites the child to play a naming game. The examiner tells the child to name each picture which he/she will show him/her. If the item is not elicited spontaneously or with the aid of additional clues, the examiner may model the word for the child and request that the child then tell him/her what it is. The test is given in its entirety, although the items listed below are considered the only ones which are at the 75-percent mastery level for the age group of 36 to 42 months.

Examples of "Stimulus Pictures":

- a. monkey
- b. tent
- c. milk (milk bottle)
- d. smoke (smoke coming from a factory-type smoke stack)
- e. sleeping (a girl sleeping in bed)
- f. garage (a wooden structure with car track leading up to it)

- g. airplane
- h. red (a splotch of red)
- i. bottle (a soda-type bottle)
- j. horse
- k. finger
- l. string (a ball of string)
- m. watch (a wrist watch)
- n. spoon
- o. sugar (a sugar bowl full of sugar with a spoon beside it)
- p. pencil (a red wooden pencil)
- q. Indian (an Indian smoking a peace pipe)
- r. desk (a wooden-type desk)
- s. soldier (a changing-of-the-guard type soldier)

2. Criterion: All spontaneous and repeated responses are scored as correct. Any self-corrections or no responses are scored as incorrect. A 36-month-old child must score 25 or above and a 42-month-old must score 29 or above out of a total of 68 items.

HOUSTON TEST FOR LANGUAGE DEVELOPMENT

(Crabtree, 1958)

I. Test Design

This is an objective-type instrument designed to assess language age in children from infancy to 3 years old.

II. Normative Data

The Crabtree study was conducted on a sample of 113 while children in the greater metropolitan area of Houston.

III. Item Analysis

A. Obeys Prepositions (36 months)

1. Procedure: The child is handed a doll and is given the following commands (one at a time): "Put it on the table. Put it under the table. Put it on the floor in front of you. Put it on the floor behind you." The doll is handed back to the child after each command.

2. Criterion: The child must perform three of the four tasks correctly in order to pass this item.

B. Names Pictures

1. Procedure: Cards depicting pictures of common objects are shown to the child one at a time. The examiner says "Name this picture," or "What do you call this?"

2. Criterion: The child must correctly name the 19 pictures.

C. Points to Pictures

1. Procedure: All of the cards which were used in the above item are again presented to the child, three at a time. The examiner instructs the child to "Show me the _____."

2. Criterion: The child must correctly point to 16 pictures.

D. Can Say Four Lines From Memory

1. Procedure: The examiner says, "Mary had a little lamb . . ." "Do you know that? Say the rest of it." "What else can you say?" or "Can you sing a song?"

2. Criterion: The child must say or sing any four lines from memory. The lines do not have to come from the same song or rhyme.

E. Tells What Happened

1. Procedure: The examiner says, "What have you been playing?" or "Tell me about your doll," etc.

2. Criterion: The child must tell in paragraph form about something that has happened.

F. Tells Sex

1. Procedure: The examiner says, "Are you a boy or a girl?" This should be given in reverse order of fact.

2. Criterion: The child must give the correct answer.

G. Gives Full Name

1. Procedure: The examiner says, "What is your name?" If the child gives his/her first name only, say, "What is your other name?" or "Tell me your full name."

2. Criterion: The child must give his/her full name.

H. Announces His/Her Actions

1. Procedure: The examiner observes the child throughout the examination to see if he/she announces what he/she is going to do before he/she does it. The child should be given some free time to play in order to prompt this response.

2. Criterion: This must be observed at least once during the testing period.

I. Protests Inaccuracies

1. Procedure: The examiner repeats a familiar rhyme or song inaccurately and observes the child to see if he/she will protest this inaccuracy. No example is provided for this item.

2. Criterion: This must be observed once.

J. Articulation

1. Procedure: The examiner models each stimulus word from the check sheet. The child must then say it back. Testing is discontinued when the child misses three in a row.

a. Labials - Group I (24 months):

- (1) baby, Bob
- (2) puppy, top
- (3) mama, come
- (4) watch

- (5) house
- b. Dentals - Group II (30 months):
- (1) top, kitty, hat
- (2) daddy, good
- (3) nose, pony, down
- c. Velars - Group III (36 months)
- (1) cat, monkey, book
- (2) gum, bigger, dog
- (3) bang

2. Criterion: To pass this section, all target phonemes must be correctly pronounced in groups I, II, and III.

HOW DO CHILDREN BECOME ABLE TO TALK
(Masland, 1972)

I. Test Design

This instrument is in chart style. Its intended use provides the parent with questions regarding the basic developmental steps of speech and language acquisition. By comparing his child's performance with the chart, the parent is able to determine his/her child's developmental level

II. Normative Data

The items on the chart were selected from traditional developmental authorities. This is the only method of standardization used.

III. Item Analysis

A. Speech and Language (36 to 42 months)

1. Can he/she show that he/she knows the meaning of some words besides the names of things, such as "Make the car go, Give me your ball, Put the block in your pocket, or Find the big doll." (Criterion: He/she should be able to understand and use some simple verbs, pronouns, prepositions, and adjectives, such as go, me, in, and big.)

2. Does he/she sometimes use complete sentences? (Criterion: He/She should be using complete sentences some of the time.)

3. Can he/she tell about events that have happened recently? (Criterion: He/She should be able to give a connected account of some recent experiences.)

B. Hearing (36 to 42 months)

Can he/she find you when you call him/her from another room? (Criterion: He/She should be able to locate the source of a sound.)

HOW DOES YOUR CHILD HEAR AND TALK
(PSI 107A X 1 Sorority and ASHF, 1981)

I. Test Design

This is a subjective instrument which is in pamphlet form. It was developed in conjunction with the American Speech and Hearing Foundation for use by parents as an

early screening measure for possible speech, language or hearing disorders. It provides developmental guidelines and helpful "reminders" for the development of good speech, language and hearing. It also provides a scoring scale and directions on securing further diagnostic service if the child's score so indicates.

II. Normative Data

A panel of six audiologists and speech-language pathologists developed and selected the test items for this chart. The chart was then disseminated to ASHA members and anyone requesting it. No formalized standardization procedures have been performed.

III. Item Analysis

A. Hearing and Understanding (30 to 48 months)

1. Does your child understand differences in meanings ("go - stop," "the car pushed the truck - the truck pushed the car")?
2. Can your child point to pictures in a book upon hearing them named?
3. Does your child notice sounds (dog barking, telephone ringing, television sound, knocking at door, and so on)?
4. Has your child's jargon and repeating disappeared?
5. Does your child like to name things?
6. Criterion: The parent checks "yes," which

is in a green colored column, or "no," which is a yellow colored column. The total is added and then checked with the score guidelines which are as follows:

- a. All Green - GOOD!
Your child is developing hearing, speech, and language normally.
- b. 1 to 3 Yellow - CAUTION!
Your child may have delayed hearing, speech, and language development. Look at the "Reminders" section in this brochure.
- c. More than 3 Yellow - ACTION!
Take your child for professional help. See "Where to Get Help" section.

LEARNING ACCOMPLISHMENT PROFILE
(Sanford, 1974)

I. Test Design

This is a hierarchy checklist of developmental behaviors. These behaviors are organized into six areas of development and then by age. The profile provides the teacher of young handicapped children with developmentally appropriate learning objectives. It provides the teacher with a systematic and graphic means in which to plan for the child's needs. There are no procedures or methods provided. Items are listed in check-list form.

II. Normative Data

Items were selected from previously standardized sources. No information is given in regard to the reliability or validity of this instrument on a new population.

III. Item Analysis

- A. Language (30 to 35 months)
 - 1. States the use of an object
 - 2. Uses 200 or more recognizable words
 - 3. Says a few nursery rhymes
 - 4. Labels own mud and clay products as "pie" or "cake"
 - 5. Points to six body parts
 - 6. Understands three prepositions
- B. Language (36 to 48 months)
 - 1. Speaks in approximately six-word sentences
 - 2. Uses nouns and verbs most frequently
 - 3. Tells action in pictures
 - 4. Can whisper
 - 5. Can change voice to faster rate
 - 6. Can increase volume of voice
 - 7. Says at least one nursery rhyme
 - 8. Can repeat three digits
 - 9. Has 900 word vocabulary
 - 10. Asks many questions beginning with "What," "Where," "Who"
 - 11. Uses plurals
 - 12. Verbalizes opposite analogies
 - 13. Can repeat a six-word sentence (41 months only)
 - 14. Verbalizes opposites (38 months only)
 - 15. Names own drawing
 - 16. Listens eagerly to stories

17. Talks to self in long monologue, mostly concerned with present, including make-believe activities
 18. Relates experiences or describes activities
 19. Uses most frequently the words: I, it, you, that, a, do, this, not, the
 20. Can give sensible answers to "why do we have stores?", etc.
 21. Can name what he has drawn after scribbling (36 months only)
 22. Carries out a four-step command using prepositions (48 months only)
- C. Articulation (36 months)
1. Does your child verbalize sounds (b, p, m, w, h)?

OLIVER PARENT ADMINISTERED COMMUNICATION INVENTORY
(MacDonald, 1978)

I. Test Design

The Oliver is designed to assess a child's range of communicative behaviors at home with his family. It is specifically intended for the assessment of pragmatic language skills. Children who are assessed with this instrument have previously been identified as nonverbal or minimally verbal and are in need of intervention. It is not recommended for the child who is able to converse in full sentences which are appropriate for his/her age group. This inventory is intended as the first step in the diagnostic process and is completed by the parents at home.

The hearing section of the Oliver is considered here due to the limited number of screening instruments which include a hearing section for children 36 to 42 months. The other areas are not considered, as the instrument is not designed as a screening tool for the unidentified child. It is looking primarily at the nonverbal and minimally verbal child.

II. Normative Data

No standardization procedures or data are provided. The author of the Oliver selected test items and assessment procedure by traditional authors which promote the study of language through pragmatics.

III. Item Analysis

A. Hearing and Listening (any age)

1. Procedure: The following statement is given to the parents:

Because a great deal of communication is learned by listening, it is important to determine how the child listens or responds to many kinds of sounds. Some of the following questions will alert you to a variety of listening tasks. A definite 'response' to sound is often difficult to determine because the child may show a variety of behaviors, such as visually searching for the source, suddenly moving, ceasing movement or activity, or making some sounds himself.

A lack of response to sound does not necessarily mean the child's hearing mechanism isn't functioning properly. Another explanation may be that the sounds do not have meaning for the child. Thus, an important aspect of early communication training is establishing sounds as meaningful and important cues for the child. (MacDonald, 1978)

2. Questions:

- a. Do you have any concerns about your child's hearing? Yes _____ No _____, Explain _____.
- b. Does your child make sounds in response to environmental noises (animal or mechanical noises)? Yes _____ No _____, Explain _____.
- c. Does the child make sounds in response to other people's speech? Yes _____ No _____, Explain _____.
- d. Does the child respond differently to speech sounds as opposed to other sounds or noises? Yes _____ No _____, Explain _____.
- e. Does the child seem to hear the same from day to day? Yes _____ No _____
- f. Does the child look at the speaker's face? Yes _____ No _____
- g. Does the child appear to favor one ear? Yes _____ No _____
- h. Is the child annoyed in a noisy situation? Yes _____ No _____

- i. Check the types of sounds listed below to which you have noticed your child respond:

<input type="checkbox"/> telephone	<input type="checkbox"/> startled re- sponse to loud noise
<input type="checkbox"/> doorbell	
<input type="checkbox"/> T.V., radio	<input type="checkbox"/> speech when facing the speaker
<input type="checkbox"/> airplane	
<input type="checkbox"/> car	<input type="checkbox"/> speech when not facing the speaker
<input type="checkbox"/> whispered speech	
	<input type="checkbox"/> speech from another room

3. Criterion: No score is given as the professional will review the inventory and make his/her own judgments. The inventory will aid the professional in alerting him/her to possible problem areas and in providing him/her with possible strengths for the handicapped child.

PHYSICIAN'S DEVELOPMENTAL QUICK SCREEN FOR SPEECH DISORDERS
(Kulig and Baker, 1975)

I. Test Design

This is a quick screening test designed for the nonspeech-language pathologist to administer. It is both a subjective- and objective-type of instrument. It is normed for children aged 6 months to 6 years. All items in each section must be passed or that entire section is failed.

II. Normative Data

This test was standardized on 105 subjects ages 6 months to 6 years. The study was conducted in Galveston, Texas. The study considered 174 language behaviors before selection of the final 42 items. The procedure for selecting the 42 items was not included in the study.

III. Item Analysis

A. Language Ability (31 to 36 months)

1. Recognizes Action

a. Procedure: The child is shown a page with eight pictures of people engaged in daily living activities. He/She is then asked to "Point to the one who is eating." This is repeated for each of the following pictures: man driving a car, boy sleeping, girl drinking, girl running, boy answering the telephone, boy eating, boy sitting, girl climbing the stairs.

b. Criterion: The child must point to at least three of the activities named. Parental report that the child points out these activities while looking at pictures or books is acceptable.

2. Uses Pronouns "You" and "Me"

a. Procedure: The child is engaged in conversation or is observed as he/she is talking with his/her parents. No materials are used to aid in eliciting conversation.

b. Criterion: The child must use "you"

and "me" meaningfully. Parental report that this behavior is typical is acceptable.

3. Names Familiar Pictures

a. Procedure: The child is shown a plate containing nine pictures (ball, man, plane, car, dog, tree, bird, cup, and cat). The examiner points to one of the pictures and asks the child "What is this?"

b. Criterion: The child must correctly name at least four pictures. Parental report that the child can name these objects when looking at pictures in a book is acceptable.

4. Is Easily Understood by Strangers

a. Procedure: No materials are necessary. The child is engaged in conversation or observed as he/she talks with his/her parent(s).

b. Criterion: The child must be able to speak in such a manner that he/she is easily understood by persons unfamiliar with his speech patterns. Parental report that this behavior is typical of the child is acceptable.

(All of the items in this section must be passed in order for the child to pass this section of the PDQ screening test.)

B. Language Ability (37 to 42 months)

1. Can Complete a Two-Part Instruction

a. Procedure: The examiner has a small

toy (pencil, cup, or similar item). He/She instructs the child to "Put the pencil on the chair, then give it to Mommy."

b. Criterion: The child should follow the instructions in the order given.

2. Gives First and Last Names

a. Procedure: The child is asked his/her name. ("What is your name?") If the child gives only his/her first name, the examiner can say "____ what?"

b. Criterion: The child should give his/her first and last names. Parental report that the child can do this is acceptable.

3. Frequently Asks Simple Questions on His/Her Own Initiative

a. Procedure: The examiner engages the child in conversation or observes the child as he/she talks with his/her parent. No materials are provided.

b. Criterion: The child should occasionally ask questions on his/her own, e.g. "What is that?" Parental report that the child does do this is acceptable.

4. Counts by Rote to at Least Three

a. Procedure: The examiner instructs the child to "Count as far as you can."

b. Criterion: The child must count on his/her own to at least three. The child's ability to rote count is being tested, not his/her concept of numbers.

Parental report that the child can do this is acceptable.

5. Rhythm of Speech (37 to 42 months)

a. Procedure: The examiner marks this section only if the parent voluntarily expresses concern about the child's rhythm of speech. A handout entitled "Normal Nonfluency -- Another Stage in Growing Up" is given to these parents. Counseling guidelines are provided for the examiner so that he/she may counsel with the parent regarding dysfluencies which are normal for the developing child.

C. Articulation (37 to 42 months)

1. Procedure: Much of the child's speech should be understandable to strangers.

2. Criterion: If the answer is now, the child does not pass this item. (All items in each section must be passed or the child does not pass that section of the PDQ screening test.) Any child who does not pass a section is referred to a speech-language pathologist with the possible problem areas indicated.

PRESCHOOL LANGUAGE SCALE

(Zimmerman, Steiner, and Evatt, 1979)

I. Test Design

This is an objective-type instrument which is designed to be administered by a trained professional. The PLS yields three scores: an auditory comprehension age/

equivalent; a verbal ability age/equivalent; and an overall language age/equivalent. Children who do not score within their age levels are considered to be "at risk" for language problems.

II. Normative Data

Each item was previously standardized by its original source. The PLS has been administered to hundreds of Head Start children in large urban areas, rural and urban youngsters in child development and early childhood education programs, and children in middle-class nursery schools. It is presently being standardized for means and standard deviations for each level.

III. Item Analysis

A. Auditory Comprehension (30 to 36 months)

1. Recognizes action

a. Procedure: The child is shown a picture of the following: boys with blocks, a girl blowing out candles on a cake, and two children taking a bath. The stimulus clues, presented one at a time are:

(1) "Where is washing?"

(2) "Where is playing?"

(3) "Where is blowing?"

b. Criterion: The child must correctly respond to two of the three items.

2. Understands Prepositions

a. Procedure: A block is handed to the

child, who is then instructed to "Put the block . . ." or asked "Can you put the block . . .?"

- (1) " . . . on the chair?"
- (2) " . . . under the chair?"
- (3) " . . . in back of the chair?"
- (4) " . . . beside the chair?"
- (5) " . . . in front of the chair?"

b. Criterion: The child must correctly follow at least two of the directions.

3. Understands Use

a. Procedure: The child is shown a page which contains pictures of a comb, glass, shoe, tricycle, iron, scissors, broom. The child is instructed to "Show me what . . ." or asked "Which is the one that . . .?"

- (1) " . . . we use to comb our hair?"
- (2) " . . . we use to drink our milk?"
- (3) " . . . goes on our feet?"
- (4) " . . . we ride on?"
- (5) " . . . we can cut with?"
- (6) " . . . we can use to sweep the
floor?"
- (7) " . . . we use to iron clothes?"

b. Criterion: The child must correctly identify at least five pictures.

4. Distinguishes Parts

a. Procedure: The child is shown a page

with pictures of a car, train, cow, horse. Then the child is asked "Show me the . . ."

(1) " . . . wheels on the train."

(2) " . . . door of the car."

(3) " . . . tail of the horse."

(4) " . . . nose of the cow."

b. Criterion: The child must identify three parts as named.

B. Auditory Comprehension (36 to 42 months)

1. Recognizes time

a. Procedure: The child is shown a page with two pictures, one of children having a tea party, the other of a boy sleeping in bed. The child is asked "Which one tells you it is nighttime?"

b. Criterion: The child must select the correct picture on the first response.

2. Compares Length

a. Procedure: A picture with two red lines running horizontally parallel to each other and of different lengths is presented to the child. The examiner asks the child to "Show me the long one" or "Put your finger on the long line." The picture is rotated after each response to alter the relative position of the line. The picture is presented six times.

b. Criterion: Correct identification for

three of the first three trials or five of the six.

3. Match Sets

a. Procedure: Twelve blocks are placed in a pile on the table, along with a blank piece of paper. The examiner places one block on the paper and says, "Look what I have put here. You take one and put it there. Make yours look like mine."

Both blocks are replaced after the child has carried out the instructions. Next, four blocks are placed one inch apart on the paper. The examiner says, "Now look what I have on my paper. You take that many too and make yours look like mine." The blocks are returned to to the pile after the child has responded. This is repeated for a two and three block pattern.

b. Criterion: The child must correctly match the exact number of blocks for three of the four sets.

4. Groups Objects

a. Procedure: The child is shown a page with pictures of cake, horse, ice cream, ball, toy dump truck, cat, dog, apples, wagon. The child is asked to "Show me all . . ." or "See if you can find all . . ."

(1) " . . . the animals."

(2) " . . . the things we eat."

(3) " . . . the toys."

b. Criterion: The child must find three

items in at least two of the groups.

C. Verbal Ability (30 to 36 months)

1. Repeats Three Digits

a. Procedure: The examiner must pronounce each number distinctly and at the rate of one per second. The child is told, "Listen, say 'four - two', now say . . ."

(1) " . . . one - four - nine."

(2) " . . . nine - six - one."

(3) " . . . two - five - three."

b. Criterion: At least one of the series must be repeated exactly.

2. Uses Plurals

a. Procedure: The examiner shows the child a page with pictures of socks, shoes, blocks, and bananas. The examiner points to each picture and asks, "What is this?"

b. Criterion: The child must identify two or more pictures of the grouped objects using the plural /s/ ending, i.e., shoes, blocks, etc.

3. Comprehends Physical Needs

a. Procedure: The examiner asks the child, "What do you do when you are sleepy?" Acceptable responses are: "Bed . . . Lie down . . . Rest . . . Go to sleep." Unacceptable responses are: "Get up . . . Ask Mommy . . . Nothing." "What do you do when you are hungry?" Acceptable responses are: "Eat . . . Candy . . . Drink

milk." Unacceptable responses are: "No . . . Bed . . . Ask Mommy." "What do you do when you get cold?" Acceptable responses are: "Coat . . . Get warm . . . Go to bed." Unacceptable responses are: "Go out . . . Nothing . . . Tell Mommy."

The child may be questioned about what he/she means by "ask" or "tell Mommy". However, if the child still does not give an acceptable response, the item is counted as incorrect.

b. Criterion: The child must correctly answer one question.

4. Converses in Sentences (elementary adult sentence structure)

a. Procedure: The examiner asks the child about his/her pets, family, or toys. The child's sentences are then critiqued.

b. Criterion: The child must be observed or reported as being able to use two or more short sentences of four to five words in length, i.e., "I have a big dog. He plays with me."

D. Verbal Ability (36 to 42 months)

1. Gives Full Name

a. Procedure: The examiner asks the child "What is your name?" If the child gives only his/her first name, the examiner is permitted to say "Jimmy What?"

Some urging is allowed.

b. Criterion: The child must give his/her full name (nickname is acceptable).

2. Counts to Three

a. Procedure: The examiner places three blocks in front of the child and says, "How many? You count them. Tell me how many is that?" The blocks are rearranged into another position and the instructions repeated.

b. Criterion: The child must correctly count the three blocks each time.

3. Comprehends Physical Needs

a. Procedure: The procedure is the same for this item as it was on the 30- to 36-month section.

b. Criterion: The child must correctly respond to two of the three items.

4. Articulates Consonants in Group II

a. Procedure: The examiner must have the child's full attention. Then the child is told, "We are going to play a word game now. I'll say a word first, then you say the same word after me. Listen carefully; say, 'baby' (this is a practice word)." The child must correctly produce the underlined sound(s) in the first choice or produce the sound correctly in both of the following choices. If the child produces the sound(s) correctly in the first

word, the alternate words do not have to be given:

- (1) did or do and mud
- (2) toot or to and hat
- (3) gag or go and dog
- (4) cake or key and bake
- (5) fifi or fun and puff

b. Criterion: The child must correctly produce the underlined sound(s) in his/her age groups to pass this section.

RECEPTIVE-EXPRESSIVE EMERGENT LANGUAGE SCALE
(Bzoch and League, 1971)

I. Test Design

This is an informant-interview type of test. It is designed to find a child's language age by looking at the child's receptive and expressive language levels and developmental patterns. It may also serve as a check list to a professional who wishes to observe a child instead of, or in addition to, the interview.

II. Normative Data

Subjects were selected to represent environmentally language-advantaged caucasian infants. The study was conducted at the University of Florida. A total of 127 infants, ranging from about 6 months to 36 months, were studied. Items selected for the test come from develop-

mental literature and existing developmental scales. Each item was clinically confirmed through standardization procedures carried out over a period of years before being incorporated into the scale. Specific data are not given.

III. Item Analysis

1. Procedure: The examiner first confirms the personal data on the score sheet. He/She also explains the importance of language development and establishes a relaxed, non-threatening rapport with the informant. General questioning of developmental milestones is suggested so a more complete picture might develop. If this type of questioning has not produced the specifics of the scale, the examiner directly asks the questions needed for the child's age level.

a. Expressive Language (33 to 36 months)

- (1) Regularly relates experiences from the recent past.
- (2) Uses several verb forms correctly in relating what is going on in an action picture.
- (3) Uses some plural forms correctly in speech.

b. Receptive Language (33 to 36 months)

- (1) Shows interest in explanations of "why" things are and "how" things function.

- (2) Carries out three simple verbal commands given in one long utterance.
- (3) Demonstrates an understanding of prepositions (such as on, under, front, behind).

RILEY SPEECH DISORDER SCALE

(Riley and Riley, 1974)

I. Test Design

This instrument is a subjective type of test specifically designed for parents, teachers, nurses, or other professionals to administer. It is in a checklist format and is divided into four major areas. Each item is then listed as a disorder of this area and is of the type which would need specific remediation.

II. Normative Data

Developmental items were selected from traditional sources. No other method of standardization has been carried out at this date.

III. Item Analysis

The examiner reads each statement and keeps it in mind while listening to the child's speech. It is important not to let another disorder influence the specific item which is being observed.

A. Language Disorders to Consider

1. Talks like a much younger child.
2. Cannot remember the names of things.
3. Does not talk at all.
4. Uses grunts or gestures to make himself/herself understood.
5. Talks very little. Does not use speech to get his/her way.
6. Overactive and/or has trouble concentrating.
7. Cannot remember to carry out instructions.
8. Acts confused when spoken to (asks you to repeat things, seems not to understand).
9. Has difficulty putting ideas to work.
10. Cannot correctly repeat the following:
 - a. (36 to 42 months) "The dog is nice."
 - b. (42 to 48 months) "I want to see that boy."

B. Articulation Disorders to Consider

1. Speech not as understandable as other children his/her age.
2. Talks too fast to be understood.
3. Seems to be trying too hard to talk correctly.
4. Upset by his/her poor speech.
5. Action of the tongue pushes the teeth for-

ward so as to affect speech.

6. Many sounds apparently coming through his/her nose.
7. Poor muscle control of lips, tongue and jaw.
8. Poor saliva control.
9. Has not mastered the speech sounds which he/she should have for his/her age (m, n, p, h, w).
10. Speech becoming worse.

C. Stuttering

1. Repeats first sound of words (example, b, b, bag).
2. Prolongs the vowel in words (example, baaag).
3. Words or sounds seem to get "stuck" in his throat or mouth.
4. Gets upset with himself/herself because he/she cannot talk "right."
5. Talks very fast and in spurts.
6. Frequently looks away while talking.
7. Pauses a long time before speaking even when he/she knows the answer.
8. Appears tense when he/she repeats or prolongs sounds.
9. Teased by other children because he/she stutters.

10. Refuses to talk or avoids certain words for fear of stuttering.

D. Criterion: Each item receives a score of 1, 2, 3, 4, or 5.

1 = no symptom

2 = just noticeable problem

3 = fair degree of the problem

4 = large degree of the problem

5 = very large and significant degree of the difficulty

A total score of 15 or more in any one area determines a referral for further diagnostic evaluation by a speech-language pathologist.

SANDERS SCALE

(Sanders, 1972)

I. Test Design

This is a scale which provides the professional with the average age of acquisition of a specific phoneme. The scale is a bar graph which starts with the median age at which a sound is customarily produced and stops at the age where 90 percent of all children usually produce the sound in all word-positions.

II. Normative Data

Sanders' "customary production" age was determined

through the review of studies which were conducted by Wellman et al, in 1931 and by Templin in 1957. Sanders studied the ages at which these studies set acquisition age levels. From this review Sanders then determined the average age of acquisition which is the age at which more than 50 percent of the children were able to articulate the sound in at least two positions. Sanders then created a bar scale which would indicate the average age of acquisition and the age level at which 90 percent of all children are customarily producing the phoneme. He feels that this type of representation of "phonemic mastery" will reduce misunderstandings in classifying children as being delayed in articulation development.

III. Item Analysis

The following phonemes were acquired to 90 percent by the 3-year-olds: p, m, h, n, w. The items b, k, g, d, t, ng, f, y, had an average age of 2 years and were acquired to 90 percent by 4 years of age.

TEMPLIN DARLEY TESTS OF ARTICULATION Second Edition

(Templin and Darley, 1978)

I. Test Design

This is an objective-type of instrument which is used solely by a trained speech-language pathologist. It is used in the assessment of articulation development.

II. Normative Data

The Templin Darley Test was originally administered to 480 children ages 3 to 8 years and consisted of an original 176 test items; however, the published version consisted of only 141 of these original test items. The subjects were all white singletons of normal intelligence with no gross evidence of a hearing loss. The children were enrolled in 14 public schools and 21 nursery schools in the Minneapolis and St. Paul areas. The total sample was divided into 8 age subsamples of 60 children for each age, levels 3 through 8 years, including a group in the 3½-year-olds and a group of 4½-year-olds. In each subsample the children were tested within 1 month of their designated ages. They were selected to be representative of the United States urban population, with their father's occupations classified according to the 1950 Minnesota Scale of Parental Occupations. The portion of cases included at each socioeconomic status level was determined by the United States 1940 occupational scale study. There were no significant differences between the development of children in different sex or economic groups.

III. Item Analysis

A. Procedure: The examiner is instructed to present the child with some drawings (single drawing per test items).

The child is instructed to tell the examiner what each picture is depicting. The picture cards are presented in the given order and each card contains a prompting statement on the back, should the child need encouraging. Should a young child not respond to the prompting, some of the items will permit imitative responses.

1. Stimulus Items (36 to 42 months)

<u>Picture</u>	<u>Phrase</u>
<u>horse</u>	"It's not a cow, but a _____?"
<u>window</u>	"We can look through the _____?"
<u>mittens</u>	"In cold weather children wear _____?"
<u>broom</u>	"We sweep with a _____?"
<u>nose</u>	"He smells with his _____?"
<u>moon</u>	"At night we see the _____?"
<u>ring</u>	"Here's a _____?"
<u>fence</u>	"Around the yard there's a _____?"
<u>knife</u>	"We cut with a _____?"
<u>pencil</u>	"We write with a _____?"
<u>pipe</u>	"Some men smoke a _____?"
<u>two</u>	"How many are these?"
<u>boat</u>	"We play with the _____?"
<u>cat</u>	"It's not a dog, but a _____?"
<u>bicycle</u>	"It's fun to ride a _____?"
<u>door</u>	"We shut the _____?"
<u>girl</u>	"It's not a boy; it's a _____?"

three yellow cubes "What color are these?"

(No phrase or picture for final /r/)

B. Criterion: Below is a list showing the age at which 75 percent of Templin's subjects correctly produced specific consonant phonemes in the initial (i) and final (f) positions.

<u>Position</u>	<u>Phoneme</u>	<u>Age</u>
(i)	/h/	3.0 years
(i)	/w/	3.0
(i & f)	/m/	3.0
(i & f)	/n/	3.0
(f)	/ng/	3.0
(i & f)	/f/	3.0
(i & f)	/p/	3.0
(i & f)	/t/	3.0
(i)	/k/	3.0
(i)	/b/	3.0
(i)	/d/	3.0
(i)	/g/	3.0
(i)	/y/	3.5
(f)	/r/	3.5

Legend

(i) = initial position; (f) = final position

UTAH TEST OF LANGUAGE DEVELOPMENT

(Mecham, Jex, and Jones, 1967)

I. Test Design

This is both an informant-interview and an objective type of test. It is designed as an assessment tool of

receptive and expressive language abilities.

II. Normative Data

The test was standardized on 273 normal white children who were selected as a rough, representative sample of Utah children.

III. Item Analysis

A. Language Skills (24 to 36 months)

1. Names Common Pictures

a. Procedure: The examiner shows the child a plate containing pictures of a wagon, a cat, a dog, shoes, a car, a book, a boy, a girl, a house, and candy. The child is asked to name each picture as the examiner points to it. The examiner is not to cue the child in any way except by pointing.

b. Criterion: The child must correctly name two or more pictures.

2. Names Common Pictures (Part II)

a. Procedure: The child should continue naming the pictures as in number one.

b. Criterion: If he/she can identify eight or more, he/she receives another point.

3. Repeats Two Digits

a. Procedure: The examiner says, "Listen. Say 'two'; now say 'four - seven'," etc. The digits should be pronounced distinctly and with perfectly uniform

emphasis at the rate of one per second. No repetition of a series is allowed.

Examples: four - seven; six - three;
five - eight.

b. Criterion: The series must be repeated in correct order and without error. The child must correctly repeat one or more series after a single reading.

4. Responds to Simple Commands

a. Procedure: A ball, hammer, gun, marble, pencil, and cup are placed on a table in this order and the examiner says:

- (1) "Give me the ball."
- (2) "Put the marble in the cup."
- (3) "Put the pencil by the gun."
- (4) "Hand me the ball and the gun."

The objects are replaced in their correct order after each trial. The command may be repeated several times if the child makes no move to carry it out.

b. Criterion: The child must correctly carry out three or more commands.

5. Identifies Action in Pictures

a. Procedure: The child is shown a plate containing action pictures of eating, flying, fighting, catching, peeking, walking, sitting, and hitting. The

examiner names the action and the child should point to the picture which demonstrates the action named.

b. Criterion: The child must correctly identify five or more actions.

6. Names One Color

a. Procedure: The child is shown a plate containing the colors red, black, blue, green, yellow, etc. The examiner says, "See these colors? Name as many as you can." He/She is then to point to the colors consecutively until the child names at least one.

b. Criterion: The child must correctly name one or more colors.

7. Identifies Vocabulary

a. Procedure: The child is shown a plate containing pictures depicting a table, bird, ball, sitting, leaf, catching, hitting, fly, peeking. The examiner says, "See these pictures? Point to the table; now point to the bird," etc.

b. Criterion: The child must identify eight vocabulary items.

B. Language Skills (36 to 48 months)

1. Repeats Three Digits

a. Procedure: The procedure is the same as for repeating two digits.

Examples: six - four - one;
three - five - three;
eight - three - seven.

b. Criterion: The child must correctly repeat one or more of the series after the single reading.

2. Says Full Name

a. Procedure: Without cue by the parent or examiner, or other person, the child should give his/her first and last name when encouraged to do so.

b. Criterion: The child must give his/her first and last name consecutively in a manner which is understandable.

3. Names Common Pictures

a. Procedure: The child is shown a plate containing pictures of a wagon, cat, dog, shoes, car, book, boy, girl, house, light, candy, hand, and pencil. The examiner points to the pictures and instructs the child to name each picture as he/she points to it. The examiner should not cue the child in any way except by pointing.

b. Criterion: The child should name twelve or more consecutively.

4. Says at Least One Nursery Rhyme

a. Procedure: The child should say a nursery rhyme, such as "Little Bo Peep" or "Little Miss Muffet," etc., when given a little encouragement.

b. Criterion: The child must repeat the entire rhyme in the exact order leaving out not more than two or three incidental words. The child receives a score of one if this is achieved.

VALETT DEVELOPMENTAL SURVEY OF BASIC LEARNING ABILITIES

(Valett, 1966)

I. Test Design

The Valett is an objective type of instrument which is designed for use by teachers and nursery school classes, special preschool programs, kindergarten, and primary classes, for the retarded and educationally handicapped. This instrument serves as a developmental growth record for the child. It can also serve as a basis for parent consultation concerning the child's educational needs.

The Valett is especially concerned with the developmental tasks which are prerequisites to formal learning.

II. Normative Data

The survey was developed by selecting or adapting items from many developmental scales. Only items which are indicative of the child's proficiency or which inform the

examiner of the need for further diagnostic evaluation measures were selected. No other statistical data are provided.

III. Item analysis

A. Auditory Discrimination (36 to 42 months)

The examiner says the following:

1. "Say 'six - four - one'."
2. "Say 'three - five - three'."
3. "Say 'boy'."
4. "Say 'girl'."

(Criterion: Any difficulty should result in a referral for an audiological evaluation.)

B. Auditory Discrimination (36 months)

The examiner says, "What is your name -- your whole name?" (Criterion: The child must say both names without prompting.)

C. Auditory Discrimination (42 months)

The examiner uses a preschool picture book such as the Little Golden Dictionary. The examiner says, "Look at this picture and tell me all about it." (Criterion: The child should enumerate three objects, describe or interpret the picture.)

VERBAL LANGUAGE DEVELOPMENT SCALE

(Mecham, 1971)

I. Test Design

The VLDS is an informant-interview type of instrument. It is an extension of the communication portion of the Vineland Social Maturity Scale (Doll, 1965). It is designed to assess verbal language development and is given by a qualified speech-language pathologist.

II. Normative Data

A total of 237 normal-speaking caucasian children were selected for the study. Research was conducted with children residing in the Utah area.

III. Item Analysis

A. Procedure: The examiner is not given any specific questions to ask the informant, but is instructed to question the informant in such a way as to elicit a description of the child's behavior without biasing the informant's responses. The examiner is encouraged to memorize the item definitions so that he/she will be better able to score the test objectively and efficiently.

B. Items (24 to 36 months)

1. Verbalizes toilet needs
2. Asks for "another"
3. Uses plurals
4. Uses vocabulary of 50 words or more in conversational speech

5. Uses I, me, you, etc., in his/her speech
 6. Expresses vocally a desire to take turns
 7. Identifies action in familiar action pictures
 8. Names one color
 9. Names almost all common pictures
- C. Items (36 to 48 months)
1. Says full name
 2. Relates experiences
 3. Says at least one nursery rhyme
 4. Recites a poem or sings a song from memory
 5. Names all colors

SUMMARY

From reviewing these 19 instruments, 148 speech, language and hearing items were found for children in the target population. A total of 39 of these items were found to occur on at least two tests, indicating that these competencies and skills are frequent measures of speech and language development.

CHAPTER III

Methods and Procedures

A chart of these 19 tests and 148 test items was made (Appendix A). All items which occurred on at least two tests plus some which were selected on professional judgment comprised the initial test battery of 61 items (Appendix B).

A pilot study using 25 subjects was undertaken to eliminate those of the 61 questionnaire assessment test items which were non-discriminatory. The subjects in the pilot study were between 32 and 42 months of age and were selected from day-care centers and preschools in San Bernardino County. One Montessori, two church-affiliated, and three private day-care centers were used. These schools were representative of the low, middle, and high socioeconomic levels as found in San Bernardino County. Each of the 25 preschoolers had to be monolingual English-speaking. All were judged by their teachers to be of normal growth and development. All had to pass the Preschool Language Scale (PLS) (Zimmerman, Steiner, and Evatt, 1979) which the researcher administered. Each subject had to be judged as developing normally in language and articulation, having normal hearing, and exhibiting no abnormal dysfluency. Those who passed these criteria were evaluated with the pilot test questions. All testing was

conducted at the school site.

The teachers of children who did not meet the criteria for being included in the initial pilot study were alerted to the possible speech, language or hearing problems which this researcher may have noticed. Parents of these children were encouraged either to contact the researcher for further information regarding the testing results and/or to contact professionals and agencies which were available to them in the area.

A frequency count of the children's performance on the pilot test items was conducted so that items which had the best potential to be screening discriminators could be identified.

The criteria for selecting items for the EARLY were:

1. Items which were passed by at least 98 percent of the children in the pilot study.

2. Items by which specific behaviors can be evoked or observed.

3. Items which evoke more than a single word response.

4. Items which require a minimum amount of time to administer or observe.

5. Items which did not require materials, other than those included on the form, for administration.

6. Items which were easily scored as pass/fail.

7. Items which were not dependent upon a particular environmental setting for administration.

The result was a core of 15 test items which became the EARLY screening test (Appendix C). Before the EARLY was administered to the final sample population it was reviewed by five randomly selected parents. Their education levels ranged from junior high to college graduate. Suggestions to clarify the instructions and to make the test items more understandable were included in the final product.

Six child/parent dyads from Head Start/State Preschool programs and six dyads composed of private clinics, Easter Seals clinics, and university day-care centers were selected to participate in the study. Within these population groups there were three children who were judged to have normal speech and language development according to the Preschool Language Scale (PLS) and three children who were considered according to the PLS to be deficient in their speech and language development. A total of 12 parent/child dyads participated in this study.

All of the subjects who participated in this research project were monolingual English-speaking children. All of the speech- and/or language-disabled children had either been referred for testing or were waiting for the test results. None of the children had ever received speech therapy.

The parents who consented to participate in this study were given a copy of the EARLY speech and Language

Screening Test and the Preschool Language Scale. The speech-language pathologist's testing took place at the school, the clinic, or in the child's home.

CHAPTER IV

Results and Discussion

In order to assess the reliability and validity of the EARLY for a small sample population, the following statistical methods were applied:

1. Parents and researcher were compared on how they scored each item by McNemar's Sign Tests using correction for continuity.

2. The parent's and researcher's scores on the EARLY were compared with the PLS to identify the most discriminating test items for a pass/fail criterion on the EARLY. The pass/fail criterion was determined by using those items for which at least five normally-speaking children passed and at least five speech-language deficient children failed.

3. For both the parent's and researcher's criteria indicating pass/fail performance on the EARLY, a Phi and Cramer V were calculated to determine the correlation of the EARLY as a pass/fail screening device with the PLS.

The performance of each subject was rated as pass/fail for each item on the EARLY. The items on the EARLY were scored independently by the parent and speech-language pathologist. To determine how well the parent and the speech-language pathologist were agreeing on their scoring of the items, the percentage of concurrence was given by

the number of children for which both the speech-language pathologist and parent agreed on the pass/fail score divided by the total number of children tested on that item. In addition to determining the percentage of concurrence, McNemar's Sign Test was calculated for each item to test the null hypothesis that both the parent and the speech-language pathologist were likely to pass a child.

Table I presents the results showing the computed significance levels of the McNemar's Sign Test as well as the percentage of concurrence for each item. The computed significance level of less than .05 indicated rejection of the null hypothesis and implied that parents were more likely to score in one direction. Table I shows that all of the items except for 3, 6, and 12 have a high level of concurrence. For items 3 and 12, parents were more likely to pass the child. For item 6 both the speech-language pathologist and the parent were equally likely to pass a child. Items 2, 8, 9, 11 and 14 have particularly high concurrence, with 92 percent concurrence between parent and speech-language pathologist.

Table 2 illustrates the items which were graded by the parent and his/her agreement with the classification of the child according to the Preschool Language Scale (PLS) (Zimmerman, Steiner, and Evatt, 1979). Pearson's Chi-square tests were performed for each item as shown in the table. All items except for 1, 6, 7, 9, 11, 12 and 15

were statistically significant ($P < .05$), indicating agreement with the PLS. Items 2, 5, 8 and 10 have the best agreement with the PLS as indicated by their higher levels of statistical significance and because at least five children classified as normal passed and at least five of the children considered "at risk" failed. For parents, these items are considered to be the best performance questions to use as pass/fail criteria on the EARLY.

Table 3 compares the speech-language pathologist's testing of each item on the EARLY to the PLS, which is the standard to which the experimental test was compared. Here all items except for 3 and 5 had a statistical significance of $P < .05$, indicating agreement. The items which had the greatest significance and which passed at least five normals and failed at least five "at risk" children were items 2, 4, 6, 8, 13 and 15. These are the best pass/fail discriminators and composed the overall pass/fail criteria of the EARLY for the speech-language pathologist. Items 3 and 5 were not reliable for the speech-language pathologist with the PLS; therefore, these items would not be useful in developing the speech-language pathologist's pass/fail criteria.

An overall summary analysis was conducted to determine if the child who passes or fails all of the best discriminating items on the EARLY would also be judged as normal (or lacking speech and language skills) by the Preschool

Language Scale. Because the speech-language pathologist had a different set of criteria items, which were significantly related to the PLS, from the parent, this analysis had to be individually run for the speech-language pathologist's and parent's results. The Chi-square test was again conducted to determine the extent of agreement. The Phi statistic was also computed as a measure of association. These results are presented in Table 4. They indicate that the criteria which the parents use to pass/fail their children are reliable measures with which to screen their children's speech and language development. They also show that there is significant agreement for the speech-language pathologist.

DISCUSSION

It is evident that the statistical information provided in Tables 1 through 4 substantiates that selected items from the EARLY screening test could be used for valid and reliable screening: namely items 2, 5, 8, and 10 for parents and items 2, 4, 6, 8, 13, and 15 for the speech-language pathologist.

The reason for choosing only these items was based on the desire to have an overall pass/fail test which would be easy to score, so that if one item was failed the entire test was failed and all items must be passed to receive a pass on the test. The other items which were

statistically significant, but which were not selected, would have a higher incidence of over-referring children who are normal and under-referring children in need of further testing. Only item number 6 would have actually over-referred; however, items 1, 4, 7, 12, 13, 14 and 15 would have missed several children in need of more conclusive diagnostics.

A comparison of Tables 2 and 3 reveals that scores of the researcher and parent both had a high correlation with the PLS. However, for the overall pass/fail criteria used (see Table 4) the speech-language pathologist had a lower correlation than did the parent. This could be due to the more rigid criteria for the speech-language pathologist; namely, the child had to pass six items instead of only four as for the parent. It would appear that if the speech-language pathologist were bound to the pass/fail criteria, his/her over-referral rate would have possibly been 50 percent. However, had the speech-language pathologist passed or failed the child on the total results of the test and had used professional judgment, he/she would not have included any of the normal group. It is possible that the pass/fail criteria for a parent is more useful than for a speech-language pathologist.

It is interesting to note that different items were better discriminators for the parents than for the speech-language pathologist. Parents were significantly better

at accurately assessing item 5 which required the child to recite a nursery rhyme or sing a song without assistance. This item was difficult for the speech-language pathologist to assess in a screening situation. Had the speech-language pathologist spent enough time with each subject to observe his behavior, the purpose of a quick screening device, which is to reduce time and money expenditure, would have been defeated.

Parents also scored item 10 considerably differently from the researcher. The parents scored all six "at risk" children and one normal child as needing to be seen by a professional, while the researcher scored only three "at risk" children and no normals. The intent of this question was to assess the child's hearing ability. Therefore, the researcher, knowing this intent, could have been biased and scored it strictly as a hearing item, not selecting those children who could answer questions easily in a noisy environment or who could respond consistently to a soft voice. This could have produced the scoring difference on this item. It could also be possible that while a child is not exhibiting these behaviors with the speech-language pathologist, he/she does exhibit these behaviors frequently at home and the parent was able to recognize this and scored the item accordingly. This would be feasible for children with fluctuating hearing losses due to colds and other respiratory infections. This might

explain why some of the normal children failed this item when using the parent's criteria and not those of the researcher.

Item number 12 was the only item which assessed the child's articulation skills. This item was not found by the parent to be a reliable indication of a child's overall speech and language development. If an item of this nature is to be included, it should be researched further and assessed on a larger parent population.

The only question dealing with dysfluency was not found to have any statistical significance. This could be due to the small sample population and to the fact that there happened to be no dysfluent children participating in this study. The intent of this question was to provide preventive counseling to parents who might be overly concerned about normal dysfluent patterns or not be aware of the more severe behaviors. Therefore, if this item over-referred a child, as indicated in the analysis, it would be acceptable as the parent would be needing further information regarding his/her child's speech and language development. This item should, therefore, remain as part of the EARLY screening test.

The pass/fail screening device items which would be best for parents to use with children between 36 to 42 months of age in assessing speech and language development would be: Item 2, requiring the child to say his/her first

and last names without prompting; item 5, requiring the child to say a nursery rhyme or sing a song without help; item 8, requiring the child to answer analogy-type questions; item 9, observing dysfluency behaviors; item 10, observing hearing behaviors; item 12, testing articulation (if item is revised as recommended).

Table I. Analysis of the 15 EARLY test items for parent and researcher agreement using 12 subjects.

EARLY Test Item		Researcher		Computed Significance Level	Percentage of Concurrence	
		Fail	Pass			
1	Parent	Fail	1	1	.5637	75
		Pass	2	8		
2	Parent	Fail	5	0	.3173	92
		Pass	1	6		
3	Parent	Fail	3	0	.0455	67
		Pass	4	5		
4	Parent	Fail	4	0	.1573	83
		Pass	2	6		
5	Parent	Fail	6	0	.0833	73
		Pass	3	2		
6	Parent	Fail	3	2	1.0000	67
		Pass	2	5		
7	Parent	Fail	1	1	.5637	73
		Pass	2	7		
8	Parent	Fail	6	0	.3173	92
		Pass	1	5		
9	Parent	Fail	0	1	Insufficient data	92
		Pass	0	11		
10	Parent	Fail	3	3	.0833	73
		Pass	0	5		
11	Parent	Fail	0	1	Insufficient data	92
		Pass	0	11		
12	Parent	Fail	4	0	.0455	67
		Pass	4	4		
13	Parent	Fail	3	1	.5637	75
		Pass	2	6		
14	Parent	Fail	3	0	.3173	92
		Pass	1	8		
15	Parent	Fail	4	1	.5637	75
		Pass	2	5		

Table 2. Item analysis establishing pass/fail criteria for the parent on the EARLY as compared with the PLS.

Early Test Item	Variable	Fail	Pass	Computed Significance Level
1	Normal	1	6	.1213
	"At Risk"	2	4	
2	Normal	0	6	.0034 *
	"At Risk"	5	1	
3	Normal	0	6	.0455
	"At Risk"	3	3	
4	Normal	0	6	.0143
	"At Risk"	4	2	
5	Normal	1	5	.0057 *
	"At Risk"	5	0	
6	Normal	2	4	.5582
	"At Risk"	3	3	
7	Normal	0	6	.1213
	"At Risk"	2	4	
8	Normal	1	5	.0209 *
	"At Risk"	5	1	
9	Normal	1	5	.2963
	"At Risk"	0	6	
10	Normal	1	5	.0034 *
	"At Risk"	6	0	
11	Normal	1	5	.2963
	"At Risk"	0	6	
12	Normal	1	5	.2207
	"At Risk"	3	3	
13	Normal	0	6	.0143
	"At Risk"	4	2	
14	Normal	0	6	.0455
	"At Risk"	3	3	
15	Normal	1	5	.0790
	"At Risk"	4	2	

* At least five normal children passed this item and at least five "at risk" children failed.

Table 3. Item analysis establishing pass/fail criteria for the researcher on the EARLY as compared with the PLS.

EARLY Test Item	Variable	Fail	Pass	Computed Signi- ficance Level
1	Normal	1	6	.0455
	"At Risk"	3	3	
2	Normal	0	6	.0005 *
	"At Risk"	6	0	
3	Normal	3	3	.5582
	"At Risk"	4	2	
4	Normal	0	6	.0005 *
	"At Risk"	6	0	
5	Normal	4	2	.0535
	"At Risk"	5	0	
6	Normal	0	6	.0034 *
	"At Risk"	5	1	
7	Normal	0	6	.0261
	"At Risk"	3	2	
8	Normal	1	5	.0034 *
	"At Risk"	6	0	
9	Normal	0	6	Accepts Null hypothesis (P=1)
	"At Risk"	0	6	
10	Normal	0	6	.0261
	"At Risk"	3	2	
11	Normal	0	6	Accepts Null hypothesis (P=1)
	"At Risk"	0	6	
12	Normal	2	4	.0143
	"At Risk"	6	0	
13	Normal	0	6	.0034 *
	"At Risk"	5	1	
14	Normal	0	6	.0143
	"At Risk"	4	2	
15	Normal	0	6	.0005 *
	"At Risk"	6	0	

* At least five normal children passed this item and at least five "at risk" children failed.

Table 4. Reliability of the EARLY as compared with the PLS. All Subjects classified as normal have passed the PLS and all children considered "at risk" have failed this same test.

		Normal	"At Risk"	Phi Statistics	Computed Significance Level
Parent	Pass	4	0	$\phi = .707$.0143
	Fail	2	6		
Researcher	Pass	3	0	$\phi = .577$.0455
	Fail	3	6		

CHAPTER V

Summary and Conclusions

SUMMARY

The 15 items which constitute the Easily Administered Recognition of Linguistically-Handicapped Youngsters Speech and Language Screening Test (EARLY) used by 12 parent/child dyads were chosen from a battery of 61 items which were selected from 19 existing evaluation instruments. The 61 items were administered to 25 normal children between the ages of 36 and 42 months to find the most discriminating items for this age group.

The EARLY was administered by 12 parents to their children between 36 and 42 months of age. There were six parent/child dyads from the Head Start/State Preschool programs and six parent/child dyads from private programs. Each of these groups consisted of three children being referred for speech and language assessment and three who were considered by their teachers to have normal physical, mental, speech, language, and hearing development. Each child was also assessed by the researcher, who is a certified speech-language pathologist. The researcher administered the EARLY to establish reliability with the parent administrators and the Preschool Language Scale (PLS) (Zimmerman, Steiner, and Evatt, 1979); the standard to which the EARLY was compared for validity.

The parents' and researcher's scoring of each item on the EARLY was compared to determine the validity of parents as administrators for an objective type of screening test. It was found that parents were able to correctly use an objective screening test to identify their children's need/lack of need for further speech, language, and/or hearing assessment. An analysis was also computed to determine which of the EARLY items would be the most reliable in identifying children needing speech and language services. It was statistically determined that if a child fails any one of these critical items, the child fails the EARLY test. Conversely, in order to pass the test, a child had to pass all of these particular items. This pass/fail standard for the parents was found to be highly reliable; there is high probability that children failing the EARLY when administered by his/her parent will fail the PLS when administered by a speech-language pathologist. Two children did not pass the EARLY, but were classified as "normal" by the PLS. However, it was learned that their parents needed advice regarding auditory acuity or normal speech-language development.

CONCLUSIONS

The results of the present pilot study indicate that parents are able to screen their children between the ages of 36 and 42 months and obtain reliable results. The

conclusions of this study include the following recommendations for further research:

1. A population larger than 12 should be used to further substantiate the pass/fail criteria. This population should include Head Start/State Preschool programs, private preschools, day-care centers, well-baby clinics, family practice, pediatric, dental, and speech clinics.

2. An analysis should be made of the referral effectiveness of the EARLY.

3. For the widest distribution to parents the EARLY should be disseminated to physicians, dentists, day-care and preschool programs (public and private), all speech and hearing clinics, well-baby clinics, newspapers, and women's magazines.

Scoring procedures need to be improved. It appeared that, while the parents correctly assessed their children's responses, they had difficulty following the scoring instructions. Only items which can be scored simply with a plus or minus should be included on the final experimental edition of the EARLY. The revised edition should contain clear and simple instructions as to where further information and assessment can be obtained. Because the only articulation item was eliminated, another articulation item should be developed which could be easily and accurately administered by the parent.

All of the above recommendations are presently being followed through by this researcher. This study demonstrated that the EARLY was able to identify children in need of speech and language services. The advantage of providing parents with a standardized objective screening tool adds a cost-effective dimension to the traditional screening methods and may increase the rate of early referral.

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A P P E N D I C E S

Appendix B

Initial Test Questions

LANGUAGE:

1. Recognizes Action

Materials: Show the child picture card #1.

Say: "What is he/she doing?" (Do not prompt.)

Repeat this for each of the pictures on the cards.

(eating, riding, driving, sleeping, playing, drinking, talking, sitting, washing, blowing, climbing)

_____ Score: (+) if the child correctly names three or more of the actions.

2. Names Objects

Materials: The room you are in.

Procedure: Ask the child to name all the objects he/she sees.

Call it a naming game.

Say: "What is this?," "What is that?," "Can you name some more things in the room?," "Which ones?"

Note: Additional encouragement may consist of "Name some more for me."

_____ Score: (+) if the child names at least eight or more objects which are familiar to him/her.

3. Knows Use of Common Objects

Materials: Show the child picture card #2. (comb, glass, shoe, trike, iron, scissors, broom)

Say: "Show me what . . .

we use to comb our hair."

we use to drink our juice from."

goes on your feet."

you ride on."

you cut with."

we use to sweep the floor."

we use to iron clothes with."

4. Names Familiar Pictures

Materials: Show the child picture card #3. (ball, man, plane, car, dog, tree, bird, cup, cat, bicycle, farm, sheep, hand, paint)

Say: "What is this?" or "Tell me what this is."

Repeat this for each of the pictures on the card.

 Score: (+) if the child is 36 months and names four or more of the pictures.

(+) if the child is 37-42 months and names nine or more of the pictures.

5. Receptive Vocabulary 8-10 Items at Age Level

Materials: Show the child the vocabulary picture card #4.

(table, bird, ball, sitting, leaf, catching, hitting, fly, peeking)

Say: "Show me ____." or "Find ____."

Repeat this for each of the pictures on the card.

____ Score: (+) if the child points to eight or more of the pictures correctly.

6. Uses Two Prepositions

Materials: Place a pencil under a chair or table (a small toy, pen or similar object may be used).

Say: "Where is the pencil?" or "Tell me where the pencil is."

Next, place the pencil on the chair or table.

Say: "Now tell me where the pencil is."

Repeat this with the pencil behind the chair and then in front of it.

____ Score: (+) if the child responds by using two of the following prepositions correctly: on, under, in front, behind.

7. Completes an Instruction with a Preposition

Materials: Hand the child a small toy, pencil, or similar object.

Say: "Put the _____ on the table."

"Put the _____ under the table."

"Put the _____ in front of Mommy's chair."

"Put the _____ in back of Mommy's chair."

Give the directions one at a time. Do not prompt or correct the child's responses.

_____ Score: (+) if the child correctly carries out two or more of the directions.

8. Completes a Two-Part Instruction

Materials: Hand the child a small toy, pencil, or similar object.

Say: "Put the _____ on the chair, then give it to me."

Note: Do not repeat the instruction.

_____ Score: (+) if the child carries out both directions in the order given.

9. Gives First and Last Name

Say: "Tell me your whole name."

If the child protests, asks why, or gives only his/her first names, say "It's part of the game we are playing. Tell me all of your name so I can write it down."

_____ Score: (+) if the child gives his/her first and last names.

10. Tells Sex

Say: "Are you a boy or a girl?"

If the child protests or is reluctant to answer, say, "It's part of the game we are playing. Can you tell me if you are a boy or a girl so I can write it down on this paper?"

_____ Score: (+) if the child is able to answer correctly that he/she is a boy or girl.

11. Gives Age

Say: "Tell me how old you are." or "Show me how old you are."

_____ Score: (+) if he/she is able to tell his/her age.

12. Can Repeat Two and Three Digits

Say: "Now we are going to play a number game. I want you to say the numbers I say. Ready? Listen . . . Say THREE. That's good." "Now say EIGHT, TWO, FIVE." "Now say TWO, EIGHT, SEVEN."

_____ Score: (+) if the child is able to correctly repeat one of the number groups.

13. Relates Experiences or Describes Activities

Materials: Think of something the child will be able to tell you about.

Example: A new toy, a trip to grandmother's house, or what he/she did at his/her friend's house.

Say: "Tell me what you did while you were playing at ____." or "Tell me what you were playing/doing at home.", etc.

____ Score: (+) if the child responds with two or more sentences of four or more words per sentence.

14. Uses Four-Word Sentences

If #13 was (+) score this item (+) also and go on to #16. If not, continue as instructed.

Materials: Pictures in magazines with lots of action taking place.

Say: "Tell me a story about this." or "Tell me what is happening." Some prompting may be necessary to get the child talking. Say: "What is he/she doing?" Praise his/her responses, then say, "Now tell me about this. Good. Tell me more." Count the child's words per sentence. Get at least five good sentences.

____ Score: (+) if the child uses an average of four words per sentence in describing the pictures. Example:
"The boy is eating.," "The girl is playing ball."

15. Asks Simple Question on His/Her own Initiative

If this occurred while you were giving item(s) #13 or #14 score (+); if not continue as instructed.

Materials: Use magazines in the office. Find some pictures which would interest your child, especially some which might prompt your child to ask questions.

Procedure: With the child on your lap or beside you, start looking at some of the pictures. Does he/she ask "What's that?," "Why?," "What's he doing?," "Where is he/she?," etc.

____ Score: (+) if the child asks any questions like this while you're looking at the magazine.

16. Uses 200-900 Recognizable Words

Could you make a list of words that your child uses in his everyday speech and be barely warmed up with 50? If you are not certain, please make a list of as many words as you can which the child has said without prompting. Are there at least 200? (Use the back of this form.)

____ Score: (+) if the answer is "Yes."

17. Repeats Five-Syllable Sentence

Say: "We are going to play a word game. I want you to say exactly what I say. Listen carefully. Ready? Say, 'I like cake and milk.' Now say, 'The cat can run fast.'"

____ Score: (+) if the child is able to correctly repeat one of the sentences. He/She must not add, leave out, or change the order of the words. It is permissible for the child to mispronounce a

word; for example, if he/she says "tat" for "cat."

18. Says at Least One Nursery Rhyme

Say: "Finish the rhyme. 'Hickory, Dickory . . .' or 'Jack and Jill . . .'" or one you know the child knows.

_____ Score: (+) if the child is able to recite one nursery rhyme completely and in the correct order.
Do not count off for mispronounced words.

19. Uses Pronouns You, Me, I

Procedure: Engage the child in conversation. You may want to use some pictures from a magazine. Listen for the use of the pronouns "you," "me," and "I."

_____ Score: (+) if the child uses "you," "me," or "I" while speaking.

20. Uses Plurals

Materials: Show the child picture card #5. (socks, shoes, blocks, balls)

Say: "What are these?"

Say this for each of the pictures.

_____ Score: (+) if two or more of the pictured objects are named using the plural.

Say: "This is your foot." (Point to one of the child's feet.)

"These are your _____." (Point to both of his/her feet.)

_____ Score: (+) if the child answer with the plural form,
"feet."

21. Uses "Do"

Materials: Show the child picture card #6. (picture of a mother talking to a boy playing with some toys)

Say: "This mother wants to know if the boy would like to go shopping with her. Tell me what she will ask him." Prompt with "You pretend to be the mother and say, 'Johnny . . .'"

_____ Score: (+) if the child answers with "Do you . . ." If the child did not respond, then score (-).

22. Comprehends Physical Needs

Say: "What do you do when you are tired or sleepy?"

_____ Score: (+) for "Go to bed," "Lie down," "Rest," "Go to sleep." "Take a nap," etc.

Say: "What do you do when you are hungry?"

_____ Score: (+) for "Eat candy," "Drink milk," "Eat lunch," "Get a snack," etc.

Say: "What do you do when you are cold?"

_____ Score: (+) for "Put on a coat," "Get warm," etc.

If the child says, "Ask Mommy," ask the child what he/she means. If the answer is still incorrect, then score (-).

_____ Total Score: (+) if the child answers one question correctly.

23. Names One Color

Materials: Show the color card #7.

Say: "See these colors? Name them for me."

Point to each color in order until one is named correctly.

_____ Score: (+) if the child names at least one color correctly.

24. Recognizes Two Colors

Materials: Show the child the color card #7. (red, blue, green, yellow)

Say: "Point to _____." or "Find _____."

Say this for each color.

_____ Score: (+) if the child correctly points to two or more colors.

25. Opposite Analogies

Say: "Listen carefully and finish my sentence. Ready? Fire is hot, ice is _____."

_____ Score: (✓) for "cold," "cool," "freezing."

"Mother is a woman, Dad is a _____."

_____ Score: (✓) for "Man."

"A horse is big, a mouse is _____."

_____ Score: (✓) for "little," "small," "tiny."

_____ Total Score: if the child has scored two or more (✓)
above, score this item (+).

26. Identifies Big-Little

Say: "Which is bigger, a mother or a baby? _____

A house or a chair?" _____

_____ Score: (+) if the child answers both questions correctly.

RHYTHM:

1. Does the child's speech "get stuck" so that it is a concern?

Examples: bbball, or

I I I want to go, or

se se see the car.

_____ Score: (+) if this is not a concern.

Note: If you have not scored this item (+), the child fails the entire test.

HEARING:

1. Does the child notice sounds coming from another room?

Yes _____ No _____

2. Does the child say "Huh" or "What" when you have asked him/her a question or told him/her to do something? Yes _____

No _____

3. Does the child frequently ask you to repeat questions and/or direction? Yes _____ No _____

4. Does the child seem puzzled or confused when you ask him/her questions and/or give him/her directions? Yes _____ No _____

5. Does the child search your face or watch you closely when you are asking him/her questions and/or giving direction? Yes _____ No _____

6. Does the child talk like a much younger child? Yes _____ No _____

7. Is the child able to find you when you call from another room? Yes _____ No _____

8. Does the child use little or no speech? Yes _____ No _____

9. Procedures: While the child is busying playing with a toy and is not looking at you, say his/her name in a normal voice.

Did the child answer when his/her back is turned? Yes _____ No _____

10. Procedure: While the child is busy playing and is not looking at you, snap your fingers or rattle your keys, one foot behind and three feet to the side. Repeat for both sides.

Did the child look in the direction from which the sound was coming each time? Yes _____ No _____

Note: Be careful that the child is not looking at you because you have moved.

11. Responds to Verbalization

Procedure: Be about three feet in front of the child. Be sure the child is not looking at you. Say, "Hi there."

Did the child look up or smile? Yes _____ No _____

ARTICULATION:

1. Is the child's speech easily understood by strangers?

Yes _____ No _____

_____ Score: (+) if yes. If no the child fails the entire test.

2. Can Imitate or Produce

Procedure: Check (✓) each item for which the child correctly says the underlined sounds. The way the child says the whole word is not being tested--only the underlined sound. You will need to listen very carefully.

Say: "We are going to play a parrot game. Let's see how many words you can say after me. Ready? Here we go . . ."

_____ <u>m</u> an	_____ <u>m</u> ommy	_____ <u>p</u> puppy
_____ <u>w</u> indow	_____ <u>b</u> oat	_____ <u>n</u> ose
_____ <u>k</u> nee	_____ <u>h</u> and	_____ <u>d</u> og
_____ <u>g</u> oat	_____ <u>d</u> ad	_____ <u>f</u> at
_____ <u>f</u> an	_____ <u>k</u> ing	_____ <u>k</u> ite
_____ <u>r</u> un	_____ <u>r</u> at	_____ <u>b</u> all
_____ <u>l</u> ight	_____ <u>t</u> ent	

_____ Score: (+) if all items are checked.

*** Did the child's speech concern you in any way? Yes _____

No _____

_____ Score: If "No," score (+); if "Yes," the child fails
the entire test.

Appendix C

Code #Parent's Last Grade
Finished in School

The Easily Admistered Recognition of
Linguistically-Handicapped Youngsters
Screening Test (EARLY)

The EARLY has fifteen games that parents can play early with their children to check their child's speech, language and hearing.

I N S T R U C T I O N S

- * The EARLY is to be given by someone who knows the child well, preferably the child's parent.
- * The EARLY will tell you just what to say and do for each game. Please say exactly what is written within the " " marks.
- * Read each instruction carefully so that you will get accurate answers.
- * Count all the (✓)'s in each column and put that total in the box at the end of the column on the last page.
- * If you have trouble understanding what you're supposed to do on any of the games or in getting your child to do what you ask him/her to do for the game, write down just what difficulties you had after that game.

The E.A.R.L.Y. Games

YES	NO	RED

1. What To Do: Hand your child your pencil.
 What To Say: (Only once, and do not point or hold out your hand.)
 "Put the pencil on the chair, then give it back to me."
 Check (✓): YES column if your child puts the pencil on the chair and hands the pencil back to you without you pointing or holding out your hand.

2. What To Do: Do not help your child by starting to say his/her name(s).
 What To Say: "Tell me your first and last name."
 Check (✓): YES column if your child says his/her first and last names without you starting them. If your child will not do this for you but you have heard him/her say both names for someone else, you may mark YES.

YES	NO	RED

3. What To Do: Check (✓) each group which your child is able to repeat exactly. Do not let him/her start saying the numbers before you finish saying the three numbers in that group.

What To Say: "We're going to play a number game. Ready? Say 8-2-5 _____. Now say 2-8-7 _____."

Check (✓): YES column if your child has one or more checks.

4. What To Do: Think of something your child has seen, done or received. For example--a new toy, a trip to Disneyland, his/her favorite T.V. program, etc.

What To Say: Any question is fine; you are just trying to get your child to use several sentences to tell you about something he/she liked.

1. _____
2. _____

YES	NO	RED

Check (✓): YES column if your child was able to tell you something using two or more four-word sentences and was able to make him/herself easily understood.

5. What To Say: "Finish the rhyme. 'Hickory, Dickory...' or 'Jack and Jill...' or the first two or three words of a nursery rhyme or song you think your child knows.

Check (✓): YES column if your child is able to say the rhyme or song completely and in the right order.

6. What To Do: Check (✓) each sentence your child says exactly as you say it.

What To Say: "We are going to play a word game. I want you to say everything I say. Ready? Say: "I like cake and milk."

YES	NO	RED

Now say: "The cat can run fast."

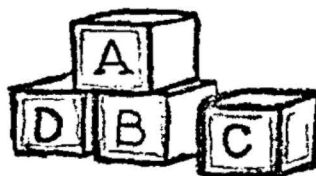
Check (✓): YES column if your child repeated at least one sentence without adding or leaving out any of the words or changing them around in the sentence.

7. What To Do: Check (✓) each picture below that your child says correctly.

For example--your child must say shoes, not shoe.

What To Say: (Point to each picture saying): "What are these?"

Check (✓): YES column if your child got two or more checks.



YES	NO	RED

8. What To Do: Check (✓) each question your child answers correctly.
 What To Say: "Listen carefully and answer my question..."

- ___ a. "Fire is hot; ice is ___."
 Correct answers: (cold, cool, freezing)
- ___ b. "Mother is a woman; Daddy is a ___."
 Correct answers: (man)
- ___ c. "A horse is big; a mouse is ___."
 Correct answers: (little, small, tiny)

Check (✓): YES column is your child got two or more checks.

9. Does your child's speech "get stuck" so badly that it bothers you, other people and/or the child?

- bbball, or
- Se Se Se the cat, or
- My My My name is Mary

Check (✓): The RED column if this type of speech is causing you to worry.

YES	NO	RED

10. What To Do: Check "Yes" or "No" below for each question.

a. Yes__ No__ Does your child say "Huh" or "What" a lot when you have said something to him/her?

b. Yes__ No__ Does your child talk like a much younger child?

c. Yes__ No__ Does your child use few or no words?

Check (✓): The RED column if you have checked any answer "Yes."

11. What To Do: While your child is busy playing with a toy and is NOT LOOKING AT YOU call his/her name or ask him/her a question.

YES	NO	RED

Check (✓): YES column if your child looks up when you say his/her name or if he/she answers the question.

12. What To Do: If your child says the underlined sound(s) correctly in the words below, place a check (✓) on the line behind that word.

What To Say: "Now we are going to play a copy cat game. Say the words I do. Ready? Say..."

mommy ___ hand ___ fan ___
puppy ___ tent ___ kite ___
window ___ dog ___ ball ___
boat ___ goat ___ light ___."
nose ___ dad ___

Check (✓): YES column if your child said ALL the underlined sounds correctly.

YES	NO	RED

13. Is your child's speech easily understood by strangers most of the time? Yes__ No__

Check (✓): The YES column if you have checked "Yes." If you have checked "No," put a check in the RED column.

14. What To Do: Do you think your child can say at least 200 words? If you are not certain, make a list of as many words as you can that you think your child uses.

Check (✓): YES if he/she uses 200 or more words.

15. Does your child's speech worry you in ANY way? Yes__ No__

Check (✓): The YES column if your child's speech does not worry you but if it does worry you, please check the RED column.