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ITEM ANALYSIS OF THE UNIVERSITY OF MONTANA
SPEECH AND LANGUAGE SCREENING DEVICE

By

Katherine T. Heider

B.A., Michigan State University, 1978

Presented in partial fulfillment of the requirements
for the degree of

Master of Arts

University of Montana

1981

Approved by:



Chairman, Board of Examiners



Dean, Graduate School

6/23/81

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ABSTRACT

Heider, Katherine, M.A., 1981

Communication Sciences
and Disorders

Item Analysis of the University of Montana Speech and
Language Screening Device

Director: Lynda Miller



The preschool speech and language screening tests presently available have demonstrated deficiencies in one or more areas necessary for convenient, accurate, and valid preschool screening. These tests are either lacking in validity and reliability information, are based on a language model which is no longer considered valid, or test only a small portion of speech and language abilities. The present investigation attempted to analyze the items of the University of Montana Speech and Language Device for difficulty and correlate the test items with both total score and age of the subject in order to eliminate poor items for the item pool. Internal consistency of each subtest was also measured. Subjects from Missoula area day-care centers were administered all items from the University of Montana Preschool Speech and Language Screening Device and an item analysis was conducted on the results. A pool of items was obtained that demonstrated good correlations with both age and total score of the subject on each subtest. Excellent internal consistency with this pool of items was demonstrated on each subtest.

ACKNOWLEDGMENTS

I gratefully acknowledge the members of my thesis committee--Lynda Miller, Beverly Reynolds, and Wesley Shellen--for their perpetual availability and valuable guidance in the development and completion of this project.

I also extend thanks to the students who assisted in collecting data--Karen Aune, Jan Bryggman, Laurie Henrickson, and Judy Lawson--and to Bill Anton, Paul Bach, and Carol Bridgewater for their assistance in helping to increase my understanding of SPSS.

Finally, I am deeply grateful to my husband, Jeff, for his patience, understanding, and ever available listening ear.

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INTRODUCTION

Many authors in the area of early childhood education and development discuss the need for early assessment and intervention with preschool handicapped children (e.g. Bereiter and Englemann, 1966; Cazden, 1978; Miller, 1979; and Wheat, 1974). Bloom (1964), in addressing the need for preschool intervention, indicates that the time of greatest intellectual growth, and therefore the optimal time for language learning in children occurs prior to age four. Hunt (1964) also compellingly demonstrates, through a thorough review of available literature, the importance of the preschool years for learning and stresses the need for early identification of deficiencies and appropriate preschool enrichment. Drawing from conceptual analyses as well as empirical research, Caldwell (1970) also presents a strong rationale to support early intervention.

This early intervention is especially critical for speech and language impaired children. Newton (1976) indicated that children who demonstrated language disorders are to be considered high risks for learning disabilities. Haring and Ridgway (1967) as well as Feschbach, Adelman and Fuller (1974), demonstrated that language difficulties in young children were primary predictors of failure in school. This failure in school was attributed primarily to reading

difficulties stemming from the language problems. Hayes and Dembro (1971) demonstrated that intervention is successful in these cases. Their study showed that language impaired children who had received early intervention obtained significantly higher scores on reading readiness tests than those children who had not received intervention.

Rogolsky (1969) found that as many as 40% of all children have problems which could seriously interfere with learning in the primary school years. Zehrbach (1975) gives a more conservative estimate of three to five per cent of preschool children who could benefit from early intervention.

The evidence supporting the need for early identification of and intervention with preschool handicapped children was so compelling as to warrant inclusion in federal legislation, P.L. 94-142 (Magliocca and Stephens, 1977.)

A number of successful early intervention programs for speech and language impaired children have been described (e.g. Bricker, 1972; Brown 1976; MacDonald, 1974; McLean and Snyder-McLean, 1978; and Miller, 1979). Although these programs vary in style and content, they all demonstrate the need for and effectiveness of early childhood speech and language intervention.

In order for programs such as these to serve the general population of preschoolers, community wide screening must be implemented (Wheat, 1974). The screening test used to identify difficulties must be relatively quick and easy to administer and meet accepted psychometric standards for reliability and validity. In addition, it must test competence in multiple areas of speech and language and represent a theoretical base which reflects the present state of knowledge of speech and language development. Speech and language screening tests presently available for use with the preschool population have major deficiencies in one or more of these parameters.

Fluharty (1974) designed a preschool speech and language test based on a generative transformational model of language (Chomsky, 1957). This model, however, has fallen out of favor for use in analyzing children's utterances in light of more recent research (Bloom, 1979, 1973, Braine, 1976, Brown, 1973). This more recent research indicates that child language can more productively be studied as a system with its own grammatical rules, rather than as poor approximations of adult language as is done in generative transformational grammar. Fluharty's test also does not include provision for the sampling of spontaneous expressive language.

Instead it utilizes an elicited language inventory to assess expressive language. The accuracy of this method for assessing true expressive language competency is questionable (Prem, 1980; Prutting and Conolly, 1976; Prutting, Gallagher, and Mulac, 1975).

the Hannah-Gardner Preschool Language Test (Hannah and Gardner, 1974) is also based on a model which reflects an outdated theory of language. The Hannah-Gardner strongly reflects its mother test, the Illinois Test of Psycholinguistic Abilities (ITPA), which is based on a modification of a theory originated by Charles Osgood in 1957. It reflects little of the present knowledge of child language. Reviewers criticize the ITPA for its lack for validity data. Negligible construct validity has been demonstrated with cognitive and environmental factors being tested rather than linguistic abilities (Tummsden, 1978). Other shortcomings of the Hannah-Gardner Preschool Language Screening Test are evident. In administering it, one must give all 70 items to all children tested, which can be quite time consuming. Also no sampling of spontaneous expressive language or articulation is included.

The Kindergarten Language Screening Test (Gauthier and Madison, 1974) does use the present knowledge of normal child language acquisition as the model for test construction. Reliability and validity data presented are considered good. Both receptive and expressive language are

sampled, while articulation is not. The Kindergarten Language Screening Test's utility as a screening instrument is limited by its restricted age range, as it is designed for use with Kindergarten children only.

The Zimmerman Preschool Language Scale (Zimmerman, Steiner and Evatt, 1969) is also based on a developmental model of language. It samples receptive and expressive language as well as articulation and covers ages one year six months to seven years. Unfortunately, no reliability or validity data are presented and developmental ages are assigned to groups of items but are not based on statistical derivation.

Other preschool language screening tests which do not present reliability or validity data include the Reynell Developmental Language Scales (Reynell, 1969), the Sivcar Language Test (Sheridan, 1976), the Receptive Expressive-Emergent-Language Scale (Bzoch and League, 1970), and the Compton Speech and Language Screening Evaluation (Compton, 1978).

Another popular screening instrument is the Northwestern Syntax Screening Test (Lee, 1969). This test measures only two portions of language, receptive and expressive syntax.

In addition, no reliability or validity data are supplied. Arndt (1977) presents a thorough discussion of the psychometric shortcomings of the Northwestern Syntax Screening Test.

The Screening Test of Auditory Comprehension for Language (Carrow, 1971) also only samples receptive language skills, making it unfeasible for use as a single test preschool screening device.

As can be seen from the previous review, the preschool speech and language screening tests presently available are either lacking validity and reliability information, are based on a language model which is no longer considered valid, or test only a small portion of speech and language abilities.

Due to the limitations of available tests, graduate students at the University of Montana designed a scale that would be quick and easy to administer, test competence in multiple areas of speech and language and be based on normal child language acquisition patterns. A number of items were chosen from various available tests, including the Fluharty Speech and Language Screening Test (Fluharty, 1974), the Sequenced Inventory of Communication Development (Hedrick, Prather, and Tobin, 1975), the Carrow Test of Auditory Comprehension for Language (Carrow, 1971), and the Zimmerman Preschool Language Scale (Zimmerman et. al., 1969), that were felt to reflect normal patterns of speech and language

acquisition. Other test items were designed by the group of graduate students and were felt to also reflect normal acquisition patterns of receptive and expressive language articulation skills. These items were then grouped into age levels by a rational-intuitive examination.

The purpose of this study was to analyze these test items according to difficulty level and also to correlate test items with test performance and age level. Reliability (internal consistency) was also measured on a final pool of items for each subtest.

METHODS

Subjects

Subjects used for this study were taken from Missoula, Montana area day care establishments. Enrollment lists were obtained and children, ages two to five and one half years , were divided into groups based upon age .

Age groups were divided at six month intervals with group 1 consisting of children two to two and one half years of age and group 7 consisting of children five years, one month to five and one half years of age.

Children within each group were chosen randomly to be tested and the parental consent form (see Appendix A) was distributed to parents of chosen children. A minimum pool of at least ten subjects per group was sought. Children, determined by either the experimenter, day-care teacher, or parent to have demonstrated speech, hearing, language, cognitive, emotional, or motor difficulties were not included in this study. Precedent for effectiveness of clinician, parent and/or teacher determination of normalcy was demonstrated by Haring and Ridgeway (1967), Prather, Hedrick, and Kern (1975), and Toronto (1974), among others.

PROCEDURES AND MATERIALS

All items from the screening test devised at the University of Montana were administered to each subject (see Appendix B). Graduate students in the Communication Sciences and Disorders Department administered the test to the subjects. These students attended a training seminar on procedures for administering this device and had demonstrated competence in its administration before giving the test to the subjects (the training instructions appear in Appendix B).

Materials and forms utilized for administration of the University of Montana Preschool Speech and Language Screening Device are available at the University of Montana Department of Communication Sciences and Disorders.

STATISTICAL ANALYSIS

The test items were analyzed for difficulty and for correlation of test items with both total score and age. It was originally intended to place items into age groupings, via Guttman Scaling, but such a procedure was later judged inappropriate for reasons presented in the Discussion. Instead, Kuder-Richardson 20 statistics were calculated as a method of assessing item consistency.

RESULTS

The major goals of this research were to analyze the items of the University of Montana Preschool Speech and Language Screening Test and scale these items. The item analysis procedure recommended by Nunally (1978) consists of correlating the performance of each subject on each item with the total score of each subject on the test, utilizing, in this case the point-biserial method.

The 30 items with the highest correlations with total score (above .25) are entered into the Kuder-Richardson-20 formula for computing reliability (internal consistency). The items on the receptive and expressive language subtests that met these criteria are indicated by a * in Appendices D and E. As the articulation subtest originally contained only 30 items, all item correlations reaching a significance level of .001 or better were entered into the KR-20 computation. A full breakdown of each item number, correlation level, whether significance level was met or not and whether the item was included in the KR-20 analysis can be found in Appendix D. The KR-20 reliability level computed for each subtest can be found in Table I. A point-biserial correlation of each item with each subject's age was also computed and can be found in Appendix D.

As can be seen from examining Appendix D a great number of items from each subtest did reach the significance level for correlation with total, score, age, or both. This is outlined in Table II.

The difficulty index for each item for each age group was also calculated by computing the fraction of subjects in each group that failed each item. A table of these results can be found in Appendix E; a summary outline appears in Tables III through V.

The correlation of each subtest total score with the age of the subject and also each subtest total score with each other subtest total score was calculated by the Pearson Product Moment method. Each of these correlations was found to be significant at the .001 level. These results can be found in Tables VI and VII, respectively.

DISCUSSION

The results show that a pool of items for each subtest has been found that correlates well with both age and total score (see Appendix D) and appears to represent developmental patterns (see Appendix E). Internal consistency for each subtest, composed of the items with the highest correlation levels, was found to be very good (see table I). The sample size for this research is considered small and the high level of the correlations and reliability may be, in part, a result of sampling error. However, in light of the very strong correlations and high internal consistency level, it is believed that significance will be maintained when these items are administered to larger populations.

Examination of appendices D and E and tables I, II, and VI reveals several interesting results. The first of these is the high rate of agreements of the level of correlation of each item with both age and total score (see Appendix D), especially on the receptive and expressive language portions. Very seldom is the age correlation over .2 different from the total score correlation on these subtests. This tends to lend support for the developmental base of the test by showing that total score is related to age. Correlations between age and total score for each

individual on each subtest (found in table VI) were significant for all 3 subtests, with those for the receptive and expressive language subtests being somewhat higher than for the articulation section. This finding could indicate that receptive and expressive language skills are more closely tied to age level than are articulatory skills, as measured by this instrument. However, due to the small sample size of this study and the small increment of difference, this result should be interpreted with caution.

Examination of the difficulty indices, broken down by age group, (see Appendix E) appears to yield further support for the developmental base of the test. Items chosen for the KR-20 analysis, in general, show that fairly smooth lines can be plotted for each item, reflecting a gradual progression of decreasing difficulty of an item with increasing subject age. Some error, however, does appear to be present. The circled difficulty indices found in Appendix E indicate where difficulty appears to increase rather than decrease at adjacent age levels.

Although random samples were taken from the participating daycare centers, two problems with this sampling are noted. The first of these is that age group 3, in general, performed superiorly to age group 4. Examination of the subject pool making up these two age groups shows that 2 of the subjects of age group 3 (20%) were chosen from Associated Students of the University of

Montana Day Care Center, children whose parents are University students. Age group 1 also has more likelihood of skewed population distribution, as only 6 of the children in this age group were from area daycares and the remainder were solicited volunteers.

In general, the small sample size used for this research leads to difficulties in making statements about the appropriate developmental levels for each of the items. The sample of 10 subjects per age group used is far below the ideal 10 subjects per item or minimum 5 subjects per item (Nunnally, 1978) needed to make normative inferences.

In light of the above mentioned sampling difficulty and inadequacies in the scaling procedure itself, discussed below, the proposed Guttman Scaling was not attempted. Two basic problems appeared in using the Guttman Scaling in the analysis of the University of Montana Preschool Speech and Language Screening Test. The first of these is that to get the response pattern that best fits the Guttman Scaling method, one is necessarily forced to deal with a small number of items that vary widely in difficulty (Nunnally, 1978). As the point-biserial correlation conducted on the items tends to eliminate the very difficult and very easy items, the items which show high correlation levels do not fit the Guttman Scale model. The other difficulty is that the Guttman Scale is a unidimensional or monotonic scale; i.e. all items on the scale must be measuring the same

factor (Nunally, 1978). As only limited factor-analytic work has been done in the area of language (Doehring and Hoshko, 1977) the monotonic composition of the Guttman scales composed for this test could not be confirmed.

Examination of the items of which the test is composed and their underlying concepts/processes, as described in the scoring manual (Appendix C) seems to indicate that multiple factors/concepts are being tested. As can be seen in the Target Concepts column of the scoring manual, several areas of concepts appear to be addressed in this test including preposition concepts, sequencing of events, noun concepts, adjective concepts, object-action association, articulatory skills, etc.

Examination of the correlations in Table VI shows another interesting finding. The receptive and expressive language subtest correlations of total score with age are practically identical. When this result is compared with the results in Table VII, which shows a high degree of correlation between the total score of the receptive and expressive subtests, it appears that the domain sampled by these two subtests is overlapping. As in many prevailing models of language processing (e.g. Nation and Aram, 1977; Wepman, Jones, Bock, and VanPelt, 1960;) in which receptive and expressive language skills are viewed as subcomponents of the same overall process. These results tend to agree with theoretical constructs of many prevailing

language processing models.

When an item by item examination of those items which were selected for the KR-20 analysis is made, the sampling of items chosen from throughout the test is found to be fairly evenly dispersed. Exceptions to this appear to be in the areas of color concepts, both receptive and expressive, sequencing, and opposites. All items focussing on color concepts were picked for the KR-20 analysis.

In both the areas of sequencing a set of pictures and relating the story of these pictures and also of telling opposites, no items were chosen for the KR-20 analysis. As the point-biserial correlation method tends to be very stringent on items with overall difficulty indices of less than .2 or greater than .8 (Nunnally, 1978), these concepts may have been eliminated because they were too difficult for the preschool population used.

As mentioned at the beginning of this section, a large pool of items with good correlations with both age and total score was identified. Reexamination of the table of difficulty indices (Appendix E) does show an area of concern for future research using this pool of items, however. Due to the the nature of the point-biserial correlation method, as mentioned previously, very easy or difficult items tend to be eliminated. Thus, if the full age range utilized for this research, from 2 years of age to 5 and one-half years of age, is the target range for the test in its final form,

additional items will need to be written and analyzed for the upper and lower age groups.

It must be noted that in its present form, utilizing the items chosen by the K-R 20 analysis, the University of Montana Preschool Speech and Language Screening Device has not yet met the final form criteria outlined in the introduction. It is presently very long, does not have any validity data and has had only internal consistency reliability computed for it. It should be viewed as a pool of items which need further analysis rather than as a final form test.

The next steps in analyzing this pool of items are assessment of validity and normalization and scaling of the items. In the construction of the norms and the scaling, a normal population distribution and adequate sample size of a minimum of 5 subjects per item (Nunally, 1978) is necessary. It is suggested that future analysis of the University of Montana Preschool Speech and Language Screening Device be done for normalization and scaling with a more limited number of items than those taken for the KR-20 analysis, in order to reduce the necessary number of subjects. Factors that should be taken into consideration in deriving a shorter version should include the item's point-biserial correlation level with both age and total score and difficulty index. Attention should also be given to defining more thoroughly the speech and language model upon

which the test is based and picking items which reflect components of this model. The high degree of overlap in the domains sampled by the receptive and expressive language subtest should also be considered when choosing items for a shortened version.

In conducting the validity studies on the final derived form of the test, it is suggested that predictive validity be assessed by the comparison of the performance of normal and previously identified speech and language impaired children on the final form.

Other interesting avenues that might be pursued in future research with this pool of items include a much more strongly process-oriented testing approach. Recent work by Miller (1980) and Pire (1978) indicate that the framework utilized to measure skills can greatly influence a subjects performance on a task. The theoretical issues of process-oriented testing in speech and language are thoroughly outlined by Muma (1978). Although processes were addressed in this research to some degree, as outlined in the manual as target concepts, only a single presentation of each item was utilized.

Factor-analysis for the basic concepts or processes of receptive and expressive language skills might also prove to be an interesting avenue of research. As described by both Nunally (1978) and Doehring and Hoshko (1977) the identification of the basic factors or processes would help

in validation or construction of models of speech and language processing and aid in our overall understanding of the underlying processes of speech and language.

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TABLES

TABLE I

Kuder-Richardson 20 Internal Consistency Levels of
Receptive Language, Expressive Language, and Articulation Subtests

Subtest	Internal Consistency Level
Receptive Language	.95
Expressive Language	.97
Articulation	.86

TABLE II

Number of Items Demonstrating a Significant*
Correlation with Total Score on the Subtest, Age,
and both Total Score and Age

Subtest	Total Number of Items on Each Subtest	Number of Significant Correlations with Total Score	Number of Significant Correlations with Age	Number of Significant Correlations with both Total Score and Age
Receptive Language	67	40	35	32
Expressive Language	57	46	39	39
Articulation	30	21	30	7

* P \leq .001

TABLE III

Summary of Item Difficulty Indices By Age Group

Receptive Language Subtest

Number Of Items With Difficulty Indices Of	Age Group 1	Age Group 2	Age Group 3	Age Group 4	Age Group 5	Age Group 6	Age Group 7
1.0	4	1	1	0	0	0	0
.9	12	6	1	2	0	0	0
.8	7	4	2	1	0	0	0
.7	2	4	3	3	0	1	0
.6	0	5	0	1	2	0	0
.5	0	4	3	2	1	0	0
.4	4	4	3	10	2	2	1
.3	0	1	4	4	5	5	1
.2	0	0	5	2	0	3	2
.1	1	1	6	4	5	4	6
.0	0	0	2	1	15	15	20

TABLE IV

Summary of Item Difficulty Indices By Age Group

Expressive Language Subtest

Number Of Items With Difficulty Indices Of	Age Group 1	Age Group 2	Age Group 3	Age Group 4	Age Group 5	Age Group 6	Age Group 7
1.0	27	4	1	0	0	0	0
.9	2	15	3	1	0	0	0
.8	1	8	2	0	1	0	0
.7	0	2	1	4	1	1	0
.6	0	1	5	4	0	0	0
.5	0	0	2	3	3	0	1
.4	0	0	3	2	2	3	1
.3	0	0	2	5	6	4	1
.2	0	0	7	5	6	4	6
.1	0	0	4	6	8	5	8
.0	0	0	0	0	3	13	13

TABLE V

Summary of Item Difficulty Indices By Age Group

Articulation Subtest

Number Of Items With Difficulty Indices Of	Age Group 1	Age Group 2	Age Group 3	Age Group 4	Age Group 5	Age Group 6	Age Group 7
1.0	0	0	0	0	0	0	0
.9	3	0	0	0	0	0	0
.8	1	3	0	0	0	0	0
.7	2	2	0	0	0	0	0
.6	1	1	3	0	0	0	0
.5	1	2	1	1	1	0	0
.4	1	2	1	1	3	0	1
.3	4	3	3	4	0	1	1
.2	2	1	1	3	4	2	2
.1	2	1	4	4	2	4	4
.0	1	3	5	5	8	11	10

TABLE VI

Correlations of the Age of the Subject with
the Total Score on Each Subtest

Subtest	Correlation Level of Total Score with Age of Subject	Significance Level
Receptive Language	.84	.001
Expressive Language	.86	.001
Articulation	.64	.001

TABLE VII

Correlations of the Total Score of the Subject
On Each Subtest with the Total Score On
Each Other Subtest

Subtests Correlated	Correlation Level	Significance Level
Receptive Language with Expressive Language	.84	.001
Receptive Language with Articulation	.59	.001
Expressive Language with Articulation	.69	.001

APPENDIX A

WRITTEN CONSENT FORM

Dear Parent:

I am in the process of gathering data for a new speech and language screening test. To gather this data the test must be given to normal preschool children. Your child has been picked as a possible candidate for this testing, which will be done between mid-July and mid-August at your child's day-care center. Let me explain what this testing will include. There are three parts. In the first part the child will be asked to follow directions and point to pictures and colors.

Some examples include: "Show me the big block" and "Pick up the ball and give me the pencil". The purpose of this part is to see how normal children understand what people say to them. In the second portion the child will talk with the tester while playing with toys. The tester will check to see what parts of speech the child uses. The child will also be asked to name objects and fill in sentence blanks. Some examples include; "What color is this?" and "Here is a car, here are two cars". In the third part the child will be asked to name pictures of common objects. This part is designed to gather data on when normal children produce certain speech sounds. It is important that the children we test are free from handicaps. If you feel your child may not qualify, please check the box below. It is also important that you know that even though you sign to indicate your permission for your child to participate, you are free to withdraw your child at anytime. If you have any questions about the methods or outcomes of the study, please feel free to contact me at the number below.

Sincerely,

Katherine Heider

Speech and Language Graduate Student

University of Montana Speech and Language Clinic

(406)243-4131

I have read a description of the study proposed by Katherine Heider. I give my permission for my child to participate in the study. I understand that I am free to withdraw my child at any time.

Signed _____

Date _____

My child's name _____

My child's birthdate _____

My child should not be included in this study because of possible handicaps.

APPENDIX B

CHILD'S AGE _____

CHILD'S NUMBER _____

IMPRESSIONS _____

SCREENING TEST

During the administration of the test the examiner should follow directions exactly as given here. Do not elaborate on test items or rephrase questions. Do not encourage or discourage the child with any facial expressions or remarks. Speak clearly and distinctly. Make sure the child is attending fully when each item is presented. Do not repeat any item unless it has been misstated. Testing should be done in a quiet environment free from distractions. A table should be available so that the examiner and child can sit facing each other comfortably with room for examination materials. Breaks for the child should be given when fatigue, stress or frustration are evident. Testing may be done in several sessions. Record the child's responses exactly as possible on the score sheet to the right of the item.

RECEPTIVE LANGUAGE

Pre-instructions: Say to the child "I have some questions I want to ask you today and some games I want to play with you. Make sure you listen carefully and do exactly as I say. Some of the questions I ask may be hard for you. That's O.K."

--Use Object Set A for the following--

Items 1-15: Arrange items from object set A in the following fashion beginning on the examiner's left:

small block in box bottom small block large block 2 cars
Present each item exactly as written on the score sheet.

1. _____ Put the block beside the car.
2. _____ Put the block below the table.
3. _____ Put the block in front of the car.
4. _____ Give me one block.
5. _____ Take the car off the table.
6. _____ Put the car on the table.
7. _____ Put the block above the car.
8. _____ Put the block between the cars.
9. _____ Take the block out of the box.
10. _____ Put the block in the box.
11. _____ Put the block on the bottom of the car.
12. _____ Give me all the blocks.
13. _____ Show me the big block.
14. _____ Put the block on top of the car.
15. _____ Put the block above the table.

-- Use Object Set B for the following --

Items 16-23: Say "Now we have some more things to look at."
Take Card A and place in front of the child with the yellow dot being on the examiner's right.

16. _____ Show me purple.
17. _____ Show me red.
18. _____ Show me yellow.
19. _____ Show me white.
20. _____ Show me blue.
21. _____ Show me orange.
22. _____ Show me black.
23. _____ Show me green.

-- Use Object Set C for the following --

Items 24-25: Arrange the following items from object set C in the following fashion.
Paper Circle Sandpaper Circle Sponge Cube Wooden Cube

24. _____ Which one is rough?
25. _____ Which one is hard?

Items 26-36: Remove the above items. Place out the following objects from Object Set C:

2 cups 4 spoons Block Ball Pencil Comb Car

26. _____ Take a cup and a spoon.
27. _____ Put your hands on the table before you stick out your tongue.
28. _____ Show me what we ride in.
29. _____ Put the block in your lap, give me the ball, and put your hands on the table.
30. _____ If I clap my hands, stand up.
31. _____ Give me the spoons.
32. _____ Pick up the ball and give me the pencil.
33. _____ Show me what we comb hair with.
34. _____ Give me three spoons.
35. _____ Show me what we eat with.
36. _____ Give me the cups.

-- Use Picture Set A for the following --

Items 37-61: Say "Now, I'm getting my pictures out. Let's look at these. Listen carefully". Use picture set A. Present each item exactly as written on the score sheet.

37. _____ What do you use to cut with?
38. _____ What do you use to ride on?
39. _____ Which one swims in the water?
40. _____ Show me the animals.
41. _____ What goes with the toothbrush?
42. _____ What do you use to comb hair?
43. _____ Show me the wheel.
44. _____ What goes with the spoon?
45. _____ What do you use to drink milk?
46. _____ Which one is running?
47. _____ Show me the things we eat.
48. _____ Show me the toys.
49. _____ Which one is eating?
50. _____ What goes with the shoe?
51. _____ Show me the tail.
52. _____ Point to the girl.
53. _____ Here are two dogs, show me the dog that isn't on the table.
54. _____ Show me the dog with no eyes.
55. _____ When do you sleep?
56. _____ Point to half an orange.
57. _____ Which one is sleeping?
58. _____ Point to the boy.
59. _____ What do you use to keep your feet warm?
60. _____ What do you use to sweep the floor?

-- Directly ask the following Questions --

Items 62-68: Ask these questions directly to the child after removing picture set A from the table.

61. _____ Tell me the opposite of short.
62. _____ What do you do when you go to the store?
63. _____ Tell me the opposite of big.
64. _____ When do you eat?
65. _____ Tell me the opposite of last.
66. _____ Tell me the opposite of under.
67. _____ Tell me the opposite of day.

EXPRESSIVE LANGUAGE

-- Assess the following in Spontaneous Speech --

Items 1-6: If these structures have not been noted in speech during teating activities, use available toys to facilitate play and spontaneous language production. Note sentences that contain structures listed in items 1-6 and record these sentences on the score sheet to the right of each item.

1. _____ Uses three word combinations.
2. _____ Presence of one or more pronouns.
3. _____ Used Wh- questions.
4. _____ Used regular past tense.
5. _____ Carried on simple conversation initiating 2 turns spontaneously.
6. _____ Used complex and compound sentences.

-- Directly ask the following Questions --

7. _____ What's this? (point to the table)
8. _____ How did you get here today?
9. _____ What's this? (point to the show)
10. _____ Are you a girl or a boy?
11. _____ What's your whole name?
12. _____ What do you do when you are cold?
13. _____ What's this (point to the chair)
14. _____ How old are you? (says age, not just shows fingers)

15. _____ What do you do when you're hungry?
 16. _____ What do you do when you are sleepy?

Items 17-21: Say "Now I'm going to say some numbers. Listen and say them just like I do." Present one number per second, with little intonation pattern. Then, if necessary, point to the child and say "You say it".

17. _____ Say 5-2-7
 18. _____ Say 9-6-1
 19. _____ Say 4-7-2-9
 20. _____ Say 3-8-5-2
 21. _____ Say 7-2-6-1

Items 22-24: Say "Now I have some sentences for you to finish." Present each item exactly as written on the score sheet.

22. _____ Fire is hot; ice is _____.
 23. _____ Brother is a boy; sister is a _____.
 24. _____ A horse is big; a mouse is _____.

-- Have the child repeat the following items --

Items 25-29: Say "Now I want you to say exactly what I say." Give each sentence exactly as written. Make sure to record the child's response exactly.

25. _____ What would they do?
 26. _____ The man is between the cars.
 27. _____ They are using our ball.
 28. _____ The children are playing baseball.
 29. _____ You run, but I'll walk.

Items 30-34: Say "O.K. now, just answer these." Present each item exactly as written on the score sheet.

30. _____ What do we do with our ears?
 31. _____ What are the days of the week?
 32. _____ What do we do with our noses?
 33. _____ What do we do with our eyes?
 34. _____ What happens when you're bad?

-- Use Picture Set B for the following --

Items 35-36: Arrange set 1 of Picture Set B in the fashion indicated on the back of the pictures, starting with 1 on the examiner's left. Present each item exactly as written on the score sheet. Be sure to record each child's response as completely as possible.

35. _____ Here are 3 pictures. Put them in order, from what happened first to what happened last.

36. _____ Tell me a story to go with the pictures, now.

Items 37-38: Arrange set 2 of Picture Set B as done with the above items.

37. _____ Here are 7 pictures. Put them in order, from what happened first to what happened last.

38. _____ Tell me a story to go with the pictures, now.

-- Use Picture Set C for the following --

Items 39-49: Say "Now I'm getting more pictures out. Listen carefully." use Picture Set C. Present each item exactly as written on the score sheet.

39. _____ Here is a dog, here are two _____.

40. _____ Here is a child, here are two _____.

41. _____ Here is a block, here are two _____.

42. _____ Here is a witch, here are two _____.

43. _____ What is this for?

44. _____ What is this for?

45. _____ What is this for?

46. _____ What is this for?

47. _____ What is this for?

48. _____ What is this for?

49. _____ What is this for?

-- Use Object Set D for the following --

Items 50-56: Place card B in front of the child. The red dot should be on the examiner's right. Present each item exactly as written on the score sheet. On item 53, the first dot is on the examiner's right, the red dot.

50. _____ What color is this dot? (point to red one)

51. _____ What color is this dot? (point to blue one)

52. _____ What color is this dot? (green)

53. _____ What color is this dot? (yellow)
54. _____ How many dots are here? Count them.
55. _____ If this is the first dot, which one is this one? (point to 3rd)
56. _____ Which one is this one? (point to 2nd)

Item 57: Arrange Sticks from object set D with the longest stick on the right and the shortest on the left. Present the item exactly as written on the score sheet.

57. _____ This is long, this is longer, this is the _____.

ARTICULATION

1. hat _____ /h/ _____ /t/
2. big _____ /b/ _____ /g/
3. sock _____ /s/ _____ /k/
4. nife _____ /n/ _____ /f/
5. tooth _____ /t/ _____ /θ/
(point to own)
6. pencil _____ /p/ _____ /n/
7. window _____ /w/ _____ /d/
8. comb _____ /k/ _____ /m/
9. ring _____ /r/ _____ /ŋ/
10. shoes _____ /ʃ/ _____ /z/
(point to own)
11. leaves _____ /l/ _____ /v/
12. chair _____ /tʃ/ _____ /r/
(point to own)
13. feather _____ /f/ _____ /ð/
14. jelly _____ /dʒ/ _____ /l/
15. yes _____ /j/ _____ /s/

APPENDIX C

Scoring Manual

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
1.	Put the block beside the car.	A) Prepositional concept: beside. B) Sequence of events. C) Noun concepts: block, car.	A) The subject places the block on the right or left side of the car within 3 to 4 inches.	A) The subject places block in front or in back of the car. B) The subject places car beside the block. C) The subject places block anywhere but 3 to 4 inches to the right or left side of the car. D) The subject did not respond.
2.	Put the block below the table.	A) Prepositional concept: below. B) Noun concepts: block, table.	A) The subject holds the block under the table. B) The subject puts the block in his/her lap. C) The subject places block on floor, chair, etc. under the table.	A) The subject places the block anywhere that is not under the table. B) The subject places an object other than the block below the table. C) The subject did not respond.
3.	Put the block in front of the car.	A) Prepositional concept: in front. B) Sequence of events. C) Noun concepts: block, car.	A) The subject places the block within 3 to 4 inches in front of the car.	A) The subject places the block anywhere except within 3 to 4 inches in front of the car. B) The subject places the car in front of the block.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
				<p>C) The subject places an object other than the block in front of the car.</p> <p>D) The subject did not respond.</p>
4.	Give me one block.	<p>A) Adjective concept: one.</p> <p>B) Verb concept: give.</p> <p>C) Noun concept: block.</p>	A) The subject gives one block to the Examiner.	<p>A) The subject hands more than one block to the Examiner.</p> <p>B) The subject picks up or points to block but does not hand to the Examiner.</p> <p>C) The subject gives the Examiner an object other than the block.</p> <p>D) The subject did not respond.</p>
5.	Take the car off the table.	<p>A) Prepositional concept: off.</p> <p>B) Syntactic concept: singular.</p> <p>C) Noun concept: car.</p>	A) The subject picks the car off the table.	<p>A) The subject leaves the car on the table or moves it to another position.</p> <p>B) The subject takes more than one car off the table.</p> <p>C) The subject takes an object other than the car off the table.</p> <p>D) The subject did not respond.</p>

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
6.	Put the car on the table. (Note: if the subject did not pick up a car, the examiner hands a car to the subject prior to this task.)	A) Prepositional concept: on. B) Verb concept: put.	A) The subject places the car back on the table.	A) The subject places the car somewhere except on the table. B) The subject hands the car to the Examiner. C) The subject did not respond.
7.	Put the block above the car.	A) Prepositional concept: above. B) Sequence of events. C) Vocabulary concepts: block, car.	A) The subject picks up the block and holds it above the car. B) The subject places the block on top of the car.	A) The subject places block in other position except above the car. B) The subject places car above the block. C) The subject places object other than the block above the car. D) The subject places block above an object other than the car. E) The subject did not respond.
8.	Put the block between the cars.	A) Prepositional concept: between. B) Sequence of events. C) Vocabulary concepts: block, car.	A) The subject places a block between the two cars.	A) The subject places a block in a position other than between the cars. B) The subject places a car between the blocks. C) The subject places an object other than a block between the cars.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
9.	Take the block out of the cup.	A) Prepositional concept: out. B) Vocabulary concepts: block, cup.	A) The subject removes the small block from the cup.	D) The subject did not respond. A) The subject places an object in the cup. B) The subject moves another object but does not remove the block from the cup. C) The subject did not respond.
10.	Put the block in the cup.	A) Prepositional concept: in. B) Vocabulary concepts: block, cup.	A) The subject places the block in the cup.	A) The subject places the block somewhere except in the cup. B) The subject places an object other than the block in the cup. C) The subject did not respond.
11.	Put the block on the bottom of the car.	A) Prepositional concept: bottom. B) Sequence of events. C) Vocabulary concepts: block, car.	A) The subject picks up the car and puts the block underneath. B) The subject turns the car over and sets the block on the car bottom.	A) The subject places the block in a position other than on the bottom of the car. B) The subject places the car on the bottom of the block. C) The subject places an object other than the block on the bottom of the car. D) The subject did not respond.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
12.	Give me all the blocks.	A) Adjective concept: all. B) Verb concept: give. C) Vocabulary concept: blocks.	A) The subject picks up all the blocks and hands them to the Examiner.	A) The subject omits giving one or more of the blocks to the Examiner. B) The subject gathers the blocks, but does not hand to the Examiner. C) The subject gives objects other than blocks to the Examiner. D) The subject did not respond.
13.	Show me the big blocks.	A) Adjective concept: big. B) Vocabulary concept: block.	A) The subject points to the largest block. B) The subject hands the largest block to the Examiner.	A) The subject hands or points to an object other than the largest block. B) The subject did not respond.
14.	Put the block on the top of the car.	A) Prepositional concept: top. B) Sequence of events. C) Vocabulary concepts: block, car.	A) The subject picks up the block and places on top of a car.	A) The subject places the block anywhere in relation to the car except on the top. B) The subject places the car on top of the block. C) The subject places an object other than a block on top of the car.
15.	Put the block above the table.	A) Prepositional concept:	A) The subject picks up a block	A) The subject positions the block some-

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
		above. B) Vocabulary concepts: block, table.	and holds over the table.	where other than above the table. B) The subject holds an object other than a block above the table. C) The subject did not respond.
16-23 16. 17. 18. 19. 20. 21. 22. 23.	Show me: Purple Red Yellow White Blue Orange Black Green	A) Adjective concepts: color.	A) The subject points to the requested color.	A) The subject points to a color other than the requested color. B) The subject did not respond.
24.	Which one is rough?	A) Adjective concept: rough.	A) The subject points to or hands the examiner the sandpaper.	A) The subject points to or hands the examiner any other object except the sandpaper. B) The subject did not respond.
25.	Which one is hard?	A) Adjective concept: hard.	A) The subject points to or hands the examiner the wooden cube.	A) The subject points to or hands the examiner any other object except the wooden cube. B) The subject did not respond.
26.	Take a cup and a spoon.	A) Conjunction concept: and. B) Verb concept: take. C) Syntactic concept:	A) The subject picks up both a cup and a spoon.	A) The subject takes only a cup or a spoon. B) The subject points to a cup and a

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
		singular. D) Vocabulary concepts: cup, spoon.		spoon. C) The subject takes more than one cup or spoon. D) The subject takes an object other than a cup or spoon. E) The subject did not respond.
27.	Put your hands on the table before you stick out your tongue.	A) Temporal concept: before. B) Sequence of events. C) Prepositional concept: on.	A) The subject places his/her hands on the table then sticks out his/her tongue.	A) The subject sticks out his/her tongue while placing his/her hands on the table. B) The subject sticks out his/her tongue before placing his/her hands on the table. C) The subject only sticks out his/her tongue or places his/her hands on the table. D) The subject places his/her hands in a position other than on the table. E) The subject did not respond.
28.	Show me what we ride in.	A) Object-action association. B) Verb concept: ride.	A) The subject points to the car.	A) The subject points to an object other than the car. B) The subject did not respond.
29.	Put the block	A) Preposi-	A) The sub-	A) The subject

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
	in your lap, give me the ball, and put your hands on the table.	tional concepts: is on. B) Sequence of events. C) Verb concepts: put, give. D) Vocabulary concepts: block, lap, ball, hands, table.	ject does all the activities requested in the order stated.	reverses, interchanges, or omits any of the activities. B) The subject improperly places one or more of the objects (i.e. the block on the table, gives the examiner the block, places the ball on the table). C) The subject uses objects other than the block and the ball. D) The subject did not respond.
30.	If I clap my hands, stand up. Note: The examiner waits 5 seconds, than claps his/her hands.	A) Conditional: if. B) Verb concepts: clap, stand up.	A) The subject waits until the examiner claps his/her hands and then stands up.	A) The subject stands up before the examiner claps his/her hands. B) The subject does not stand up when the examiner claps his/her hands.
31.	Give me the spoons.	A) Syntactic concept: plural. B) Verb concept: give. C) Vocabulary concept: spoon.	A) The subject picks up more than one spoon and hands them to the examiner.	A) The subject picks up only one spoon. B) The subject picks up one or more spoons but does not give them to the examiner.
32.	Pick up the ball and give me the pencil.	A) Sequences of events. B) Verb concepts: pick up, give.	A) The subject picks up the ball, then picks up the pencil	A) The subject omits one of the activities or reverses their order. B) The subject

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
		C) Vocabulary concepts: ball, pencil.	and gives it to the examiner.	gives the ball to the examiner. C) The subject picks up or gives an object other than the ball or pencil. D) The subject did not respond.
33.	Show me what we comb hair with.	A) Object-action association. B) Verb concepts: show, comb.	A) The subject points to or picks up the comb.	A) The subject points to or picks up an object other than the comb. B) The subject did not respond.
34.	Give me three spoons.	A) Adjective concept: three. B) Verb concept: give. C) Noun concept: spoon.	A) The subject picks up three spoons and hands them to the examiner.	A) The subject picks up more or less than three spoons and hands them to the examiner. B) The subject picks up or points to the spoons but does not give them to the examiner. C) The subject picks up an object other than the spoons.
35.	Show me what we eat with.	A) Object-action association. B) Verb concept: show, eat.	A) The subject points to or picks up a spoon or spoons.	A) The subject points to or picks up an object other than the spoons. B) The subject did not respond.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
36.	Give me the cups.	A) Syntactic concept: plural. B) Verb concept: give. C) Noun concept: cup.	A) The subject hands both cups to the examiner.	A) The subject hands only one cup to the examiner. B) The subject points but does not hand the cups to the examiner. C) The subject hands an object other than a cup to the examiner. D) The subject does not respond.
37.	What do you use to cut with?	A) Object-action association. B) Verb concept: cut	A) The subject points to picture of scissors.	A) The subject points to picture other than scissors. B) The subject did not respond.
38.	What do you use to ride on?	A) Object-action association. B) Verb concept: ride.	A) The subject points to picture of tricycle.	A) The subject points to picture other than tricycle. B) The subject did not respond.
39.	Which one swims in water?	A) Object-action association. B) Verb concept: swims.	A) The subject points to picture of the fish.	A) The subject points to picture other than the fish. B) The subject did not respond.
40.	Show me the animals.	A) Classification group: animals. B) Noun concept: animals. C) Syntactic concepts: plural (implied "all").	A) The subject points to all the animals pictured.	A) The subject omits one or more animals. B) The subject includes non-animals in pointing. C) The subject did not respond.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
41.	What goes with the toothbrush?	A) Object association. B) Verb and preposition concepts: goes with.	A) The subject points to picture of the toothpaste.	A) The subject points to picture of object other than toothpaste. B) The subject did not respond.
42.	What do you use to comb hair?	A) Object-action association. B) Verb concept: comb.	A) The subject points to the picture of comb.	A) The subject points to picture other than comb. B) The subject did not respond.
43.	Show me the wheel.	A) Noun concept: wheel.	A) The subject points to the wheel of the car.	A) The subject points to any other part of the car. B) The subject did not respond.
44.	What goes with the spoon?	A) Object association. B) Verb and preposition concepts: goes with.	A) The subject points to the fork.	A) The subject points to picture of an object other than the fork. B) The subject did not respond.
45.	What do you use to drink milk?	A) Object-action association. B) Verb concepts: use, drink. C) Noun concept: milk.	A) The subject points to the cup.	A) The subject points to picture of an object other than the cup. B) The subject did not respond.
46.	Which one is running?	A) Verb concept: running.	A) The subject points to picture of the child running.	A) The subject points to picture of a child involved in other actions. B) The subject did not respond.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
47.	Show me the things we eat.	A) Object-action association. B) Classification group: food. C) Syntactic concept: plural, (implied "all").	A) The subject points to all the food in the picture and no other objects.	A) The subject points to one or more non-food objects. B) The subject omits one or more food objects. C) The subject did not respond.
48.	Show me the toys.	A) Classification group: toys. B) Syntactic concept: plural (implied "all").	A) The subject points to all the toys in the picture and no other objects.	A) The subject points to one or more objects which are not toys. B) The subject omits one or more toys. C) The subject did not respond.
49.	Which one is eating?	A) Verb concept: eating.	A) The subject points to the picture of the child eating.	A) The subject points to a picture of a child involved in other activities. B) The subject did not respond.
50.	What goes with the shoe?	A) Object Association. B) Verb concepts: goes with.	A) The subject points to picture of sock.	A) The subject points to picture of object other than sock. B) The subject did not respond.
51.	Show me the tail.	A) Noun concept: tail.	A) The subject points to the dog's tail.	A) The subject points to a part of dog other than tail. B) The subject did not respond.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
52.	Point to the girl.	A) Noun concept: girl.	A) The subject points to the girl in the picture.	A) The subject points to the boy. B) The subject did not respond.
53.	Here are 2 dogs. Show me the dog that isn't on the table.	A) Verb and negative contraction. B) Noun concepts: dog, table.	A) The subject points to the dog on the floor in the picture.	A) The subject points to the dog on the table. B) The subject points to an object other than the dog on floor. C) The subject did not respond.
54.	Show me the dog with no eyes.	A) Negation: no. B) Noun concept: eyes.	A) The subject points to picture of the dog without eyes.	A) The subject point to another picture. B) The subject did not respond.
55.	When do you sleep?	A) Temporal concept: when. B) Time-action association. C) Verb concept: sleep.	A) The subject points to the picture showing night.	A) The subject points to the picture showing another time of day. B) The subject did not respond.
56.	Point to half an orange.	A) Adjective concept: half. B) Noun concept: orange.	A) The subject points to the picture of half an orange.	A) The subject points to a picture showing something other than half an orange. B) The subject did not respond.
57.	Which one is sleeping?	A) Verb concept: sleeping.	A) The subject points to the picture of the	A) The subject points to picture of child engaged

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
			child sleeping.	in other action. B) The subject did not respond.
58.	Point to the boy.	A) Noun concept: boy.	A) The subject points to the picture of the boy.	A) The subject points to the picture of the girl. B) The subject did not respond.
59.	What do you use to keep your feet warm?	A) Object-action association. B) Verb concepts: use to, keep warm. C) Noun concept: feet.	A) The subject points to the sock.	A) The subject points to the picture of an object other than the sock. B) The subject did not respond.
60.	What do you use to sweep the floor?	A) Object-action association. B) Verb concepts: use to, sweep.	A) The subject points to the broom.	A) The subject points to the picture of an object other than the broom. B) The subject did not respond.
61.	Tell me the opposite of short.	A) Noun concept: opposite. B) Adjective concepts: short, long.	A) The subject says, "long."	A) The subject responds with a word other than long. B) The subject uses the word "short" in a phrase (i.e. "Like a short person." C) The subject did not respond.
62.	What do you do when you go to the store?	A) Response to wh- questions: what and when.	A) The subject gives an answer indicating	A) The subject gives an answer that does not in-

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
		B) Noun concept: store.	a shopping activity such as "buy," "pay for," "try on," "pick out," "push the cart."	dicating an activity that is primarily related to shopping such as "ride in the car," "look at," "eat." B) The subject does not include a verb in the answer. C) The subject did not respond.
63.	Tell me the opposite of big.	A) Noun concept: opposite. B) Adjective concepts: big, little, or small.	A) The subject says, "little" or "small."	A) The subject responds with a word other than typically associated with the opposite of big such as "short" or "low." B) The subject uses the word "big" in a phrase. C) The subject did not respond.
64.	When do you eat?	A) Time-action association. B) Time concept: when. C) Verb concept: eat.	A) The subject uses a word that indicates a typical eating time such as lunch time, breakfast time, dinner time, after school, noon, when I get home, when dad/mom gets	A) The subject indicates a time not usually associated with a major meal such as bedtime, nap-time, when it rains, when I'm bad, when I'm cold. B) The subject does not indicate a time or hunger in the answer (i.e. apples, granola, at Suzy's house).

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
			home, 5-6 o'clock, 11-1 o'clock, 7-8 o'clock, or when I'm hungry.	C) The subject did not respond.
65.	Tell me the opposite of last.	A) Noun concept: opposite. B) Adjective Concepts: last, first.	A) The subject responds with a word indicating first or beginning.	A) The subject responds with a word that does not indicate first or beginning (i.e. middle). B) The subject uses a phrase such as "Like he was last," "last night" or defines the word. C) The subject did not respond.
66.	Tell me the opposite of under.	A) Noun concept: opposite. B) Preposition concepts: under, over, or on top.	A) The subject responds with a word indicating over or on top of.	A) The subject responds with another preposition such as "in" or "on." B) The subject uses "under" in a phrase or defines the word. C) The subject did not respond.
67.	Tell me the opposite of day.	A) Noun concepts: opposite, day, night.	A) The subject responds with a word indicating night.	A) The subject does not respond with a word indicating night such as "daytime," "light," "dark." B) The subject uses "day" in a phrase such as, "Like when it's daytime

Item
Number

Item

Target
Concepts

Responses
Scored +

Responses
Scored -

out."

C) The subject
did not re-
spond.

Expressive Language Subtest

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
1-6				
1.	Used three word combinations.	A) As outlined in each item.	A) Presence of the target structures were noted in spontaneous language in play.	A) Presence of the target structures were not present in spontaneous language in play.
2.	Presence of one or more pronouns.			
3.	Used wh-questions.			
4.	Used regular past tense.			
5.	Carried on a simple conversation initiating two turns spontaneously.			
6.	Used complex and compound sentences.			
7.	What's this? (point to the table.)	A) Noun concept; table.	A) The subject responds with the word "table" or "desk."	A) The subject responds with a word other than "table" or "desk." B) The subject did not respond.
8.	How did you get here today?	A) Response to "how" question. B) Object-action association.	A) The subject responds with a word indicating a typical means of conveyance (i.e. in a car, on the bus). B) The subject indicates with whom he or she	A) The subject omits the preposition or verb from the phrase (i.e. car, bike, Dave, Mom). B) The subject gives an unrelated response (i.e. this morning, at Billy's, I ate breakfast). C) The subject

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
			came plus a verb (i.e. Dave brought me, I came with Suzy's mom).	did not respond.
9.	What's this? (point to the shoe.)	A) Noun concept: shoe, boot, etc.	A) The subject responds with the word "shoe" or an appropriate name for the foot wear if the examiner is wearing, for example, boots, sandals, clogs, etc.	A) The subject does not indicate a type of foot wear in the response (i.e. gloves, pants). B) The subject does not use the generic term shoe and incorrectly labels the foot wear (i.e. calls sandals boots). C) The subject did not respond.
10.	Are you a boy or a girl?	A) Noun concepts: boy, girl.	A) The subject responds with the correct gender.	A) The subject responds with the incorrect gender. B) The subject responds with his/her name or responds with a yes or no. C) The subject did not respond.
11.	What's your whole name? (Note: if just the first name is given, one prompt of, "I want your whole long name," may be given.)	A) Noun concepts: whole, name.	A) The subject responds with a minimum of first and last name.	A) After prompting the subject still indicates just first name or last name. B) The subject indicates he/she does not know his/her whole name.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
12.	What do you do when you are cold?	<p>A) Response to wh-questions: what do and when</p> <p>B) Adjective concept: cold.</p>	<p>A) The subject gives a response that indicates a typical activity to be done when one is cold (i.e. put a coat on, go inside, get a blanket, turn up the heat).</p>	<p>C) The subject did not respond.</p> <p>A) The subject gives an answer that is not typically associated with getting warm (i.e. find my dad, go to the store).</p> <p>B) The subject gives an answer that is usually associated with having a cold rather than being cold (i.e. take my medicine, see the doctor).</p> <p>C) The subject did not respond.</p>
13.	What's this? (point to the chair.)	<p>A) Noun concept: chair.</p>	<p>A) The subject responds with "chair," "bench," "folding chair," etc.</p>	<p>A) The subject responds with a word that is not an object used for sitting on.</p> <p>B) The subject responds with a word that is related to chair (i.e. couch, table).</p> <p>C) The subject gives the color of the chair.</p> <p>D) The subject did not respond.</p>
14.	How old are you? (Note: If the subject shows	<p>A) Response to question: how old.</p>	<p>A) The subject says correct age.</p>	<p>A) The subject responds with a number other than his/her</p>

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
	just fingers, one prompt of, "Tell me how old you are." is permissible.	B) Number concept: age.		correct age. B) The subject does not respond with a number. C) The subject did not respond.
15.	What do you do when you're hungry?	A) Response to wh-questions: what do plus when. B) Adjective concept: hungry.	A) The subject responds with an answer that includes the verb eat.	A) The subject responds with an answer that does not contain a verb. B) The subject responds with an answer that contains a verb other than eat (i.e. go to sleep). C) The subject did not respond.
16.	What do you do when you're sleepy?	A) Response to wh-questions: what do plus when. B) Adjective concept: sleepy.	A) The subject responds with an answer that includes the verb sleep.	A) The subject responds with an answer that does not contain a verb. B) The subject responds with an answer that contains a verb other than sleep (i.e. eat dinner). C) The subject did not respond.
17-21	Say:	A) 3 and 4 unit auditory memory.	A) The subject repeats the numbers without omission, transposition, substitution, or addition of numbers.	A) The subject omits, substitutes, transposes or adds numbers when repeating the sequence. B) The subject did not respond.
17.	5-2-7			
18.	9-6-1			
19.	4-7-2-9			
20.	3-8-5-2			
21.	7-2-6-1			

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
22.	Fire is hot; ice is ____.	<p>A) Adjective concepts: hot, cold.</p> <p>B) Noun concepts: fire, ice.</p> <p>C) Opposite relationships.</p>	<p>A) The subject responds with the words cold or cool.</p>	<p>A) The subject responds with an adjective other than cold or cool.</p> <p>B) The subject responds with "not hot."</p> <p>C) The subject gives a response that does not contain an adjective (i.e. ice).</p> <p>D) The subject did not respond.</p>
23.	Brother is a boy; sister is a ____.	<p>A) Noun concepts: brother, sister, boy, girl.</p> <p>B) Opposite relationships.</p>	<p>A) The subject responds with the word girl.</p>	<p>A) The subject responds with a noun other than "girl" (i.e. lady, woman, sister).</p> <p>B) The subject does not respond with a noun (i.e. pretty).</p> <p>C) The subject did not respond.</p>
24.	A horse is big; a mouse is ____.	<p>A) Adjective concepts: big, little.</p> <p>B) Noun concepts: horse, mouse.</p> <p>C) Opposite relationships.</p>	<p>A) The subject responds with the word little, small, or tiny.</p>	<p>A) The subject responds with an adjective other than little, small, or tiny (i.e. low, short, grey).</p> <p>B) The subject does not respond with an adjective (i.e. mouse).</p> <p>C) The subject did not respond.</p>

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
25-29				
25.	What would they do?	A) Auditory memory for sentences.	A) The subject repeats the sentence exactly.	A) The subject substitutes, omits, transposes, or adds words in his/her repetition of the sentences.
26.	The man is between the cars.	B) Repetition of syntax forms.	Contraction of verbs is allowable.	B) The subject did not respond.
27.	They are using our ball!			
28.	The children are playing baseball.			
29.	You run, but I'll walk.			
30.	What do we do with our ears?	A) Response to wh-question: what do. B) Object-action association. C) Noun concept: ears.	A) The subject gives verbal response indicating utilization of the sense of hearing (i.e. hear with them, listen.	A) The subject gives a response that does not contain a verb. B) The subject gives a response that indicates an action other than hearing (i.e. wiggle them, be quiet). C) The subject does not give a verbal response (i.e. subject reaches up and wiggles his/her ears. D) The subject did not respond.
31.	What are the days of the week?	A) Noun concept: days of the week.	A) The subject says all seven days of the week, although not necessarily in order.	A) The subject names some of the days of the week, but not all seven. B) The subject does not name days of the week in his/her answer (i.e. nighttime). C) The subject did not respond.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
32.	What do we do with our noses?	A) Response to wh-question: what do. B) Object-action association. C) Noun concept: nose.	A) The subject gives verbal response indicating utilization of the sense of smell (i.e. to smell stuff, to sniff things).	A) The subject gives a response that does not contain a verb. B) The subject gives a response that indicates an action other than smelling (i.e. blow it, wiggle it). C) The subject does not give a verbal response (i.e. subject blows or wrinkles up nose). D) The subject did not respond.
33.	What do we do with our eyes?	A) Response to wh-question: what do. B) Object-action association. C) Noun concept: eyes.	A) The subject gives verbal response indicating utilization of the sense of vision (i.e. to look at stuff, to see with).	A) The subject gives a response that does not contain a verb. B) The subject gives a response that indicates an action other than vision (i.e. blink them, close them and go to sleep). C) The subject does not give a verbal response (i.e. subject blinks or closes eyes). D) The subject did not respond.
34.	What happens when you're bad?	A) Response to wh-question:	A) The subject indicates	A) The subject indicates an action not

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
		what happens when. B) Adjective concept: bad.	some form of punishment in his/her response (i.e. I sit in my room, I get a spanking).	generally associated with punishment in his/her response (i.e. I go outside, I go to school). B) The subject did not respond.
35.	Here are three pictures. Put them in order from what happened first to what happened last.	A) Sequential ordering of activities. B) Adjective concepts: first, last.	A) The subject lays down all 3 pictures in proper sequential order.	A) The subject lays down pictures out of proper sequential order. B) The subject did not respond.
36.	Tell me a story to go with the pictures.	A) Sequential ordering of activities. B) Verb concepts: to describe each picture.	A) The subject relates the story of the events in correct chronological order, giving at the minimum a noun and a verb for each picture. Note: syntax forms (i.e. as irregular verbs, noun verb agreement) do not have to be correct to pass this item. Also, if the story is related in correct chronological order, even if the pictures are out of order, score a plus.	A) The subject relates the story of the events out of chronological order. B) The subject did not respond.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
37.	Here are 7 pictures. Put them in order from what happened first to what happened last.	A) Sequential ordering of activities. B) Adjective concepts: first, last.	A) The subject lays down all 7 pictures in proper sequential order.	A) The subject lays down pictures out of proper sequential order. B) The subject did not respond.
38.	Tell me a story to go with the pictures now.	A) Sequential ordering of activities. B) Verb concepts: to describe each picture.	A) The subject relates the story of the events in correct chronological order, giving at the minimum a noun and a verb for each picture. Note: syntax forms (i.e. as irregular verbs, noun verb agreement) do not have to be correct to pass this item. Also, if the story is related in correct chronological order, even if the pictures are out of order, score a plus.	A) The subject relates the story of the events out of chronological order. B) The subject did not respond.
39.	Here is a dog; here are two _____.	A) Syntactic concept: regular pluralization - s.	A) The subject responds with dogs or puppies.	A) The subject omits the plural - s. B) The subject did not respond.
40	Here is a child; here are two children.	A) Syntactic concept: irregular pluralization.	A) The subject responds with	A) The subject does not give irregular plural, children,

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
			children.	in his/her response (i.e. childs, kids). B) The subject did not respond.
41.	Here is a block; here are two _____.	A) Syntactic concept: regular pluralization. - s.	A) The subject responds with blocks.	A) The subject omits the plural - s. B) The subject adds a redundant - es (i.e. blockses). C) The subject did not respond.
42.	Here is a witch; here are two _____.	A) Syntactic concept: regular pluralization - es.	A) The subject responds with witches.	A) The subject omits plural - es. B) The subject adds a redundant - es (i.e. witcheses). C) The subject did not respond.
43.	What is this for? (a picture of an apple.)	A) Response to wh-question: what is this for? B) Object-action association. C) Noun concept: apple. D) Verb concept: eat.	A) The subject responds with an answer that includes an eating action.	A) The subject responds with an answer that does not contain a verb (i.e. labels the object). B) The subject did not respond.
44.	What is this for? (a picture of a house.)	A) Response to wh-question: what is this for? B) Object-action association.	A) The subject responds with an answer that indicates living in,	A) The subject responds with an answer that does not contain a verb (i.e. labels the object or says

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
		C) Noun concept: house.	going in, or some form of protection.	"for people." B) The subject did not respond.
45.	What is this for? (a picture of a spoon.)	A) Response to wh-question: what is this for? B) Object-action association. C) Noun concept: spoon. D) Prepositional concept: with.	A) The subject responds with an answer that indicates eating with or picking up food.	A) The subject responds with an answer that does not contain a verb (i.e. labels the object). B) The subject omits the preposition "with" when responding "eating." C) The subject did not respond.
46.	What is this for? (a picture of a pond.)	A) Response to wh-question: what is this for? B) Object-action association. C) Noun concept: lake or pond.	A) The subject responds with an activity usually associated with a pond (i.e. to swim in, to fish in, for fishing in).	A) The subject responds with an answer that does not contain a verb (i.e. labels the object). B) The subject did not respond.
47.	What is this for? (a picture of a table.)	A) Response to wh-question: what is this for? B) Object-action association. C) Noun concept: table. D) Prepositional concept: at or on.	A) The subject responds with an answer that indicates eating <u>at</u> or <u>on</u> , sitting <u>at</u> or doing an activity <u>upon</u> .	A) The subject responds with an answer that does not contain a verb (i.e. labels the object). B) The subject omits the preposition at or on. C) The subject did not respond.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
48.	What is this for? (a picture of a book.)	A) Response to wh-question: what is this for? B) Object-action association. C) Noun concept: book.	A) The subject responds with an answer that indicates reading or looking at it.	A) The subject responds with an answer that does not contain a verb (i.e. labels the object). B) The subject did not respond.
49.	What is this for? (a picture of a baseball.)	A) Response to wh-question: what is this for? B) Object-action association. C) Noun concept: baseball.	A) The subject responds with an answer that indicates an activity usually associated with a baseball such as throwing, playing with, hitting, or playing baseball.	A) The subject responds with an answer that does not contain a verb (i.e. labels the object). B) The subject did not respond.
50-53	What color is this dot?	A) Color concepts: red, blue, green, yellow.	A) The subject correctly names the color of the dot.	A) The subject incorrectly labels the color of the dot. B) The subject did not respond.
50.	Red			
51.	Blue			
52.	Green			
53.	Yellow			
54.	How many dots are here? Count them.	A) Number concepts: counting to four.	A) The subject counts to four in correct sequence.	A) The subject omits, substitutes, transposes, or adds additional numbers. B) The subject labels the colors of the dots.

<u>Item Number</u>	<u>Item</u>	<u>Target Concepts</u>	<u>Responses Scored +</u>	<u>Responses Scored -</u>
				C) The subject did not respond.
55.	If this dot is the first dot, which one is this one? (Examiner points to the third dot.)	A) Number concept: third or three.	A) The subject responds with third or three.	A) The subject responds with a number other than three or third. B) The subject labels the color of the dot. C) The subject did not respond.
56.	Which one is this one? (Examiner points to the second dot.)	A) Number concept: second or two.	A) The subject responds with second or two.	A) The subject responds with a number other than second or two. B) The subject labels the color of the dot. C) The subject did not respond.
57.	This is long, this is longer, and this is the _____.	A) Superlative form: longest.	A) The subject responds with the word longest.	A) The subject responds with "long one" or "longer." B) The subject does not respond with an adjective (i.e. "stick"). C) The subject did not respond.

Articulation Subtest

There are thirty items on this subtest consisting of two target phonemes on each of fifteen words. Word number one contains item one and two, word number two contain items three and four, and so on.

Substitution, distortion, or omission of the target phoneme, as judged by the clinician, is scored as an error. Correct production, as judged by the clinician, is scored as a correct response.

APPENDIX D

APPENDIX D

Correlation Level of Performance on Each Item
With Total Score and Age

Receptive Language Subtest

Item Number	Correlation With Total Score	P =	Correlation With Age	P =	Chosen For KR-20 Analysis
1	.5664	.000*	.5894	.000*	*
2	.2641	.014	.3921	.000*	
3	.5554	.000*	.4767	.000*	*
4	.2591	.015	.2108	.04	
5	.2670	.013	.1672	.083	
6	.2531	.017	.1969	.051	
7	.1717	.078	.065	.297	
8	.5873	.000*	.6651	.000*	*
9	.0552	.325	.0919	.225	
10	.1252	.151	.0423	.364	
11	.5529	.000*	.5262	.000*	*
12	.4058	.000*	.1284	.145	
13	.3462	.002	.2923	.007	
14	.5710	.000*	.4362	.000*	*
15	.2510	.018	.2828	.009	
16	.6371	.000*	.4709	.000*	*
17	.7732	.000*	.6228	.000*	*
18	.7855	.000*	.6250	.000*	*
19	.7685	.000*	.5967	.000*	*
20	.7056	.000*	.5295	.000*	*
21	.7276	.000*	.6090	.000*	*
22	.7629	.000*	.6117	.000*	*
23	.7168	.000*	.5784	.000*	*
24	.1030	.198	.1349	.133	
25	.5369	.000*	.4109	.000*	*
26	.3217	.003	.2706	.012	
27	.2059	.044	.2699	.012	
28	.4055	.000*	.3275	.003	
29	.5687	.000*	.4604	.000*	*
30	.3996	.000*	.3661	.001*	
31	.1801	.068	.1955	.052	
32	.3372	.002	.2640	.014	
33	.1078	.187	-.0010	.497	

Receptive Language Subtest

Item Number	Correlation With Total Score	P =	Correlation With Age	P =	Chosen For KR-20 Analysis
34	.4576	.000*	.4086	.000*	*
35	.3946	.000*	.1961	.052	
36	.0061	.480	-.0126	.459	
37	.5111	.000*	.3033	.005	*
38	.0135	.456	.0040	.487	
39	.4751	.000*	.3595	.000*	
40	.6255	.000*	.5101	.000*	*
41	.5988	.000*	.5891	.000*	*
42	.2997	.006	.1015	.202	
43	.3022	.006	.3222	.003	
44	.5115	.000*	.5268	.000*	*
45	.3379	.002	.2438	.021	
46	.5395	.000*	.4439	.000*	*
47	.5440	.000*	.5131	.000*	*
48	.6061	.000*	.5076	.000*	*
49	.3795	.001*	.3377	.002	
50	.6796	.000*	.5447	.000*	*
51	.0379	.378	.1422	.120	
52	.1950	.053	.1391	.125	
53	.6695	.000*	.6326	.000*	*
54	.5926	.000*	.4441	.000*	*
55	.5086	.000*	.5478	.000*	*
56	.2785	.010	.2610	.015	
57	.2616	.014	.2186	.035	
58	.3801	.001*	.2706	.012	
59	.4242	.000*	.4389	.000*	
60	.4447	.000*	.3048	.005	*
61	.3313	.003	.3748	.001*	
62	.5962	.000*	.5461	.000*	*
63	.3733	.001*	.4277	.000*	
64	.5408	.000*	.5572	.000*	*
65	.2843	.009	.3195	.004	
66	.2843	.009	.3195	.004	
67	.3773	.001*	.4031	.000*	

Expressive Language Subtest

Item Number	Correlation With Total Score	P =	Correlation With Age	P =	Chosen For KR-20
1	.2096	.041	.1525	.104	
2	unanalyzable - all subjects passed item				
3	.3960	.000*	.2880	.008	
4	.8684	.000*	.7391	.000*	*
5	.4536	.000*	.3400	.002	
6	.8608	.000*	.7240	.000*	*
7	.1409	.122	.1224	.156	
8	.6848	.000*	.5747	.000*	*
9	.1788	.069	.2560	.016	
10	.4653	.000*	.3123	.004	
11	.5005	.000*	.4042	.000*	
12	.7230	.000*	.5602	.000*	*
13	.2096	.041	.1832	.065	
14	.4360	.000*	.3236	.003	
15	.6327	.000*	.6377	.000*	*
16	.8345	.000*	.6817	.000*	*
17	.7729	.000*	.6929	.000*	*
18	.7361	.000*	.6739	.000*	*
19	.5220	.000*	.4748	.000*	
20	.5733	.000*	.5758	.000*	
21	.6285	.000*	.6175	.000*	*
22	.7611	.000*	.6543	.000*	*
23	.8358	.000*	.7311	.000*	*
24	.8521	.000*	.7282	.000*	*
25	.7062	.000*	.5793	.000*	*
26	.7163	.000*	.6229	.000*	*
27	.6903	.000*	.5830	.000*	*
28	.7755	.000*	.6098	.000*	*
29	.4702	.000*	.4267	.000*	
30	.6257	.000*	.5953	.000*	*
31	.1355	.132	.2476	.019	
32	.6370	.000*	.5766	.000*	*
33	.6169	.000*	.5945	.000*	*
34	.5514	.000*	.5129	.000*	
35	.4290	.000*	.3580	.001*	
36	.3909	.000*	.3084	.005	
37	.3201	.003	.3159	.004	
38	.3940	.000*	.3999	.000*	
39	.3056	.005	.2359	.025	
40	.1019	.201	.0374	.379	
41	.2945	.007	.1809	.067	

Expressive Language Subtest

Item Number	Correlation With Total Score	P =	Correlation With Age	P =	Chosen For KR-20 Analysis
42	.4558	.000*	.3654	.001*	
43	.8505	.000*	.7336	.000*	*
44	.8169	.000*	.6817	.000*	*
45	.7578	.000*	.6504	.000*	*
46	.4143	.000*	.3773	.001*	
47	.5949	.000*	.5245	.000*	*
48	.4089	.000*	.3616	.001*	
49	.7181	.000*	.6275	.000*	*
50	.8080	.000*	.6531	.000*	*
51	.7542	.000*	.6272	.000*	*
52	.8320	.000*	.7203	.000*	*
53	.7639	.000*	.6532	.000*	*
54	.7497	.000*	.7258	.000*	*
55	.3063	.005	.1701	.080	
56	.3636	.001*	.2173	.035	
57	.6422	.000*	.5103	.000*	*

Articulation Subtest

Item Number	Correlation With Total Score	P =	Correlation With Age	P =	Chosen For KR-20 Analysis
1	.5139	.000*	.2680	.012	*
2	.4380	.000*	.2947	.007	*
3	unanalyzable - all subjects passed item				
4	.3422	.002	.2664	.013	
5	.5279	.000*	.4626	.000*	*
6	.3159	.004	.1661	.085	
7	.2837	.009	.1422	.12	
8	.5490	.000*	.3209	.003	*
9	.3159	.004	.1061	.191	
10	.6177	.000*	.4144	.000*	*
11	.3422	.002	.0084	.473	
12	.3768	.001*	.2080	.042	*
13	.4859	.000*	.2428	.021	*
14	.4130	.000*	.2475	.019	*
15	.4976	.000*	.2157	.036	*
16	.2081	.042	.0282	.408	
17	.4916	.000*	.3823	.001*	*
18	.1948	.053	.0241	.422	
19	.6290	.000*	.5766	.000*	*
20	.4195	.000*	.2645	.013	*
21	.4290	.000*	.3029	.005	*
22	.5520	.000*	.3104	.004	*
23	.4417	.000*	.3158	.004	*
24	.3743	.001*	.3522	.001*	*
25	.6103	.000*	.3413	.002	*
26	.6208	.000*	.3675	.001*	*
27	.5188	.000*	.3048	.005	*
28	.7325	.000*	.5375	.000*	*
29	.1079	.187	-.0306	.401	
30	.4831	.000*	.2895	.008	*

APPENDIX E

APPENDIX E

Item Difficulty Indices

Receptive Language Subtest

Item Number	Age Group 1	Age Group 2	Age Group 3	Age Group 4	Age Group 5	Age Group 6	Age Group 7	Chosen For KR-20 Analysis
1	.9	1.0	.5	.7	.3	.2	.1	*
2	1.0	1.0	.9	.9	1.0	.6	.6	
3	.8	.4	.4	.1	.3	.1	.0	*
4	.3	.2	.0	.0	.1	.1	.1	
5	.2	.1	.1	.0	.1	.0	.1	
6	.3	.0	.2	.0	.0	.0	.1	
7	.7	.7	.6	.8	.8	.6	.5	
8	1.0	.9	.8	.5	.3	.4	.0	*
9	.0	.1	.2	.1	.1	.0	.0	
10	.0	.0	.1	.1	.0	.0	.0	
11	.9	.7	.7	.4	.3	.3	.1	*
12	.3	.4	.2	.3	.0	.1	.3	
13	.1	.4	.1	.0	.0	.0	.0	
14	.6	.2	.3	.1	.1	.0	.0	*
15	.9	.8	.9	.8	.7	.5	.6	
16	.8	.6	.2	.7	.1	.2	.0	*
17	.9	.6	.0	.3	.0	.0	.0	*
18	.9	.7	.1	.3	.1	.0	.0	*
19	.8	.7	.1	.4	.0	.0	.0	*
20	.7	.6	.2	.4	.0	.0	.0	*
21	.9	.5	.1	.3	.0	.0	.0	*
22	.9	.5	.1	.3	.0	.0	.0	*
23	.9	.6	.1	.2	.0	.1	.0	*
24	.7	.5	.7	.6	.5	.6	.6	
25	.9	.9	.4	.5	.5	.4	.2	*
26	.1	.4	.3	.1	.1	.0	.0	
27	.9	.6	.6	.5	.5	.6	.4	
28	.6	.5	.6	.3	.4	.2	.1	
29	.9	.7	.5	.7	.5	.7	.1	*
30	.5	.4	.3	.3	.1	.0	.1	
31	.1	.2	.2	.2	.0	.0	.0	
32	.6	.6	.4	.5	.7	.3	.3	

Expressive Language Subtest

Item Number	Age Group 1	Age Group 2	Age Group 3	Age Group 4	Age Group 5	Age Group 6	Age Group 7	Chosen For KR-20 Analysis
44	1.0	1.0	.2	.2	.1	.2	.0	*
45	1.0	.9	.6	.5	.1	.2	.1	*
46	1.0	1.0	.9	.9	.8	.7	.4	
47	1.0	.9	.7	.3	.2	.1	.5	*
48	1.0	.9	.9	.8	.4	.7	.6	
49	1.0	.8	.3	.2	.2	.1	.1	*
50	1.0	.7	.1	.2	.0	.0	.0	*
51	.8	.8	.2	.3	.1	.0	.0	*
52	.9	.9	.1	.1	.0	.0	.0	*
53	.9	.9	.1	.1	.3	.0	.0	*
54	1.0	.8	.6	.7	.1	.0	.0	*
55	1.0	.9	.7	1.0	.9	.9	.7	
56	1.0	.9	.9	.8	.9	1.0	.6	
57	1.0	.9	.6	.6	.3	.4	.2	*

Articulation Subtest

Item Number	Age Group 1	Age Group 2	Age Group 3	Age Group 4	Age Group 5	Age Group 6	Age Group 7	Chosen For KR-20 Analysis
1	.2	.0	.0	.0	.0	.0	.0	*
2	.1	.4	.0	.0	.0	.0	.0	*
3	.0	.0	.0	.0	.0	.0	.0	
4	.2	.2	.0	.0	.1	.0	.0	
5	.9	.8	.6	.3	.2	(3)	.2	*
6	.1	.1	.0	.1	.0	.0	.0	
7	.0	.1	.0	.4	.0	.0	.0	
8	.4	.2	.0	.0	.0	.0	(1)	*
9	.0	.1	.1	.1	.0	.0	.0	
10	.9	.8	.6	.3	(4)	.1	(4)	*
11	.0	.1	.1	.0	.2	.0	.0	
12	.2	.0	.0	(1)	.0	.0	.0	*
13	.1	(3)	.0	(1)	.0	.0	.0	*
14	.0	(4)	.1	.0	.0	.0	.0	*
15	.3	.1	.1	.0	(2)	.0	.0	*
16	.0	.2	.0	.0	.0	.0	.1	
17	.7	.7	.5	.4	.4	.2	.1	*
18	.0	.2	.0	.0	.1	.0	.1	
19	.9	.7	.1	(2)	.1	.0	.0	*
20	.7	.0	(1)	.1	.0	(1)	(2)	*
21	.5	(8)	.3	(5)	.5	.2	.1	*
22	.6	.6	.4	.2	(4)	.0	(3)	*
23	.4	.1	.4	.0	.0	.0	.1	
24	.6	.0	.0	.2	.1	.0	.0	
25	.3	.3	.3	.3	.0	.0	.0	*
26	.7	.9	.2	.2	.4	.3	.2	
27	.3	(5)	.3	.2	.2	.0	(1)	*
28	.8	.5	.2	(3)	.1	.1	.0	*
29	.0	.0	.0	.1	.1	.0	.0	
30	.3	.3	(6)	.1	(2)	.1	.0	*

APPENDIX F

36
0001110011011100000100011001111111110111111001011100011
1010000000

27 25 1111011111111111100100111111

13
1110101011101100000000000000000000000001011000000000000000

31
00011100110111000000000001010011111111001101100101101001
1110000000

31 18 101011111011101110010101100010

6
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32 16 111101001011011000010011001011

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40
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1110000000

35 10 001000100001000101011011000010

7
11100010100011000

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1110000000

34 25 11111111011101101111011101111

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44 23 1111111001111101010111111100

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44 28 11111111111111111110111111011

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1111111001

66 24 1111111111111101100001101111

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