

A CRITICAL EXAMINATION OF THE APPROACHES TO THE
APPRAISAL OF ORAL LANGUAGE DEVELOPMENT

by *JOE*

SEARA MCINTOSH WEIR

B. S., University of Kansas, 1962

A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARTS

Department of Speech

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1969

Approved by:

Robert S. Brooks
Major Professor

LD
2668
R4
1969
W44
C.2

ACKNOWLEDGMENTS

Sincere appreciation is expressed to Dr. Robert S. Brooks, Associate Professor of Speech Pathology, for his patient guidance and encouragement as Major Advisor. The assistance given by him has been invaluable in the writing of this paper.

The writer also wishes to thank her husband, John, and her parents for their encouragement and enduring confidence.

Researchers have studied many parameters of language and derived a variety of procedures for measurement. The literature has revealed that many frames of reference have been used to describe language development, however little has been done to relate these approaches to one another.

It is the purpose of the present paper to critically examine contemporary writings on oral language, as reflected in the literature, in an attempt to gain an insight as to how these approaches relate to one another and to note their respective merits and shortcomings as reported by others.

A basic mastery of spoken language is normally acquired very rapidly during the pre-school years, usually between the ages of one and five. The child whose language development is seriously delayed for any reason labors under an almost unsurmountable handicap in his social and academic relationships. Wood (1964) believes that delayed speech and language development occurs with greater frequency and, at times, with greater complexity than any other known communication disorder.

Lerea (1958) points out that speech clinicians are finding themselves more and more involved with clients whose most severe handicap is language--its comprehension and formulation. They are called upon to assess the degree and the nature of the language retarded child's communication problems. Many times only the articulation and fluency aspects are considered and other important behaviors of speech and

language are overlooked. The clinicians need to understand the person as a speaker and listen to what he says as well as how he says it.

Shriner and Sherman (1967) believe that the need to assess children's language development has long been recognized. Wood (1964) suggests that appraisals of language delay are necessary to accumulate pertinent information and to select the most effective way to solve the problem. Carrow (1968) indicates that adequate assessment and treatment of language disorders depends a great deal upon knowledge of the nature and development of the language process and all students of communication disorders should delve into the process of language and its appraisal.

The present review is divided into five sections, each describing a different approach to the study and appraisal of oral language development. The first section describes the theoretical model approach which Carrow (1968) says is, "concerned with the formulation of theoretical process-descriptions (models) of language in terms of neuropsychological systems of learning." Under this section, the Illinois Test of Psycholinguistic Abilities (Kirk and McCarthy, 1961) is reviewed as an example. In the second section, the empirical or word centered approach is presented. Empirical approaches utilize normative data obtained through cross-sectional and longitudinal studies of different aspects of language reception and expression in children. The measures of verbal output, language structure and vocabulary are reviewed. The

linguistic approach is introduced in part three. The linguistic approach is the application of the principles of linguistic theory and methods of linguistic analysis to the study of language development.

Sister Mary Arthur Carrow (1968) believes that,

"theoretical explanations of, as well as empirical data on, the development of the linguistic process in man permits the description of a language disorder within the framework of breakdowns in process and stage of development."

Section four is devoted to the behavior approach. The behaviorists view language and communication problems as determined by antecedent events and consequences which can be objectively described, classified, and in many instances, manipulated. They believe that language behavior is learned and as such is subject to the same principles as other behavior. The Parson's Language Sample by Spradlin (1965) is included under this section. The final section is concerned with the eclectic approach. This is a combination of two or more of the approaches described above.

Each approach to the appraisal of language development offers some means of diagnosis. Each system appears to have its peculiar merits and limitations. Intercorrelations among these various measures would be useful. Only a beginning has been made, however, toward determining the relative importance of the various parameters.

It is the concern of this paper to give consideration to the different approaches to the study of language development and the methods of appraisal, in order to gain greater

insight relative to how the approaches can be related to one another.

The word language has a wide variety of meanings. The term language is frequently interchanged with the term speech. For some, language includes all forms of expression; not only verbal expression, but expression in the form of gestures, music, art, and sculpture. The definitions of the grammarians represent the opposite extreme, in which language is limited to that form of verbal expression which conforms to the conventional rules of grammar.

Leberfeld (1955) defines language as,

"the ability to communicate ideas and feelings through the use of word symbols and the ability to understand and respond adaptively to the ideas and feelings of others as conveyed through word symbols."

Newland (1960) uses the term "verbal behavior" to be denoted by the term language. This includes use of words in speaking, reading, and writing.

Carroll (1964) says that, "Language as a socially institutionalized sign system serves two major functions:

1. as a system of responses by which individuals communicate with each other (inter-individual communication)
2. as a system of responses that facilitates thinking and action for the individual (intra-individual communication)

McCarthy (1930) says that, "Language is a term that is applied to a system of symbolic habits which each individual learns so early in life that he cannot remember the process of its acquisition.

Wood (1964) believes that language is an organized system of linguistic symbols (words) used by human beings to communicate on an abstract level.

Johnson, Darley and Spriesersbach (1963), Shriner and Sherman (1967), and Templin (1957) have pointed out that, historically, the speech clinician has been very word centered and sound oriented in his consideration of language. It is recognized that the current concept of language is all embracing, but the speech clinician typically considers articulation, voice, and fluency behaviors independently.

In general, the various theories that have been advanced place the emphasis on different aspects of this tremendously complex process, and some recognize its pleurality of function. The term, language, is used differently, depending upon the discipline involved, the purpose and point of view of the investigator.

For purposes of the present paper, language will be limited to syntax, morphology, grammar, and vocabulary.

Theoretical Model Approach

The first approach to the study and appraisal of oral language development to be considered, is concerned with what Carrow (1968) calls, "the formulation to theoretical process-descriptions of language in terms of neuropsychological systems of learning." This approach utilizes theoretical models of language that explain the encoding-decoding process of linguistic data and the levels or stages of the processing

system. These are postulated to be sensation, perception, conceptualization, symbol formulation, and expression. Types of language disorders are viewed as a result of disruption at any one or more levels or processes.

The Illinois Test of Psycholinguistic Abilities (ITPA) by Kirk and McCarthy (1961) is a test based on a learning model and designed for the purpose of diagnosing language difficulties. The ITPA is based on a revision of Osgood's (1957) model of psycholinguistic abilities originally derived by extending and elaborating Hull's (1943) formulations. The ITPA was designed to meet the need for a comprehensive instrument for the assessment of language development. The rationale for the ITPA assumes that the test items are measuring implicit processes within the person and that the language responses are merely effects of these processes.

Figure I depicts the model upon which the test is based.

Three major dimensions are postulated to specify a given psycholinguistic ability; they are levels of organization, psycholinguistic processes and channels of communication. The levels of organization describe the functional complexity of the organism. This section is divided into two parts. The representational level is sufficiently organized to mediate activities requiring the meaning or significance of linguistic symbols. The automatic-sequential level mediates activities requiring the retention of linguistic symbol sequences and the execution of automatic habit-chains.

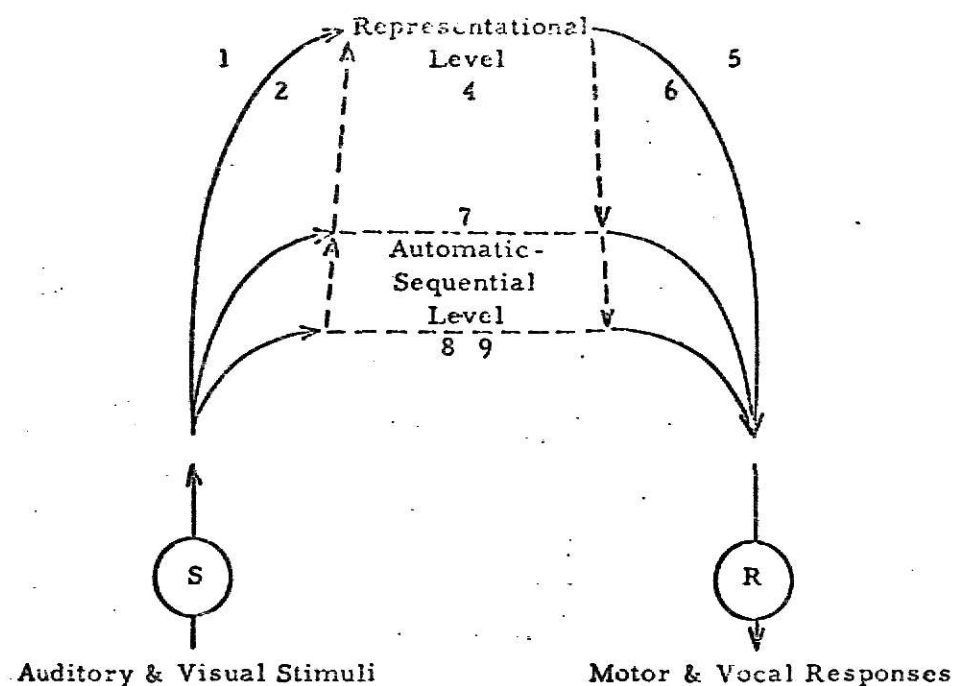
The dimension of psycholinguistic processes encompasses

Decoding

Association

Encoding

3



Representational Level

1. Auditory Decoding
2. Visual Decoding
3. Auditory-Vocal Association
4. Visual-Motor Association
5. Vocal Encoding
6. Motor Encoding

Automatic-Sequential Level

7. Auditory-Vocal Automatic
8. Auditory-Vocal Sequencing
9. Visual-Motor Sequencing

Figure I

the acquisition and use of the habits required for normal language. It is dependent on learning theory for its complete and adequate explanation. There are three processes included in this section. Decoding is the sum total of those habits required to ultimately obtain meaning from either visual or auditory linguistic stimuli. Encoding is the sum

total of those habits required to ultimately express oneself in words or gestures. The sum total of those habits required to manipulate linguistic symbols internally is association.

The channels of communication describe the sensory-motor path over which linguistic symbols are received and responded to. It is divided into mode of reception and mode of response.

The tests at the representational level assess some aspect of the subject's ability to deal with meaningful symbols. The decoding tests deal with the ability to comprehend auditory and visual symbols.

Test 1. Auditory decoding--the ability to comprehend the spoken word. It is assessed by a controlled vocabulary test in which the subject is asked to answer yes or no by voice or gesture to a series of graded questions.

Test 2. Visual decoding--the ability to comprehend pictures and written words. It is assessed by a picture identification technique in which the subject selects from among a set of pictures the one which is most nearly identical, on a meaningful basis, to a previously exposed stimulus picture.

The Association Tests assess the ability to relate visual or auditory symbols in a meaningful way.

Test 3. Auditory-vocal association--the ability to relate spoken words in a meaningful way.

Test 4. Visual-motor association--the ability to relate meaningful visual symbols.

The Encoding Tests assess the ability to put ideas into words or gestures.

Test 5. Vocal encoding--the ability to express one's ideas into spoken words.

Test 6. Motor encoding--the ability to express one's ideas into gestures.

The tests at the Automatic-Sequential level deal with the non-meaningful uses of symbols. The Automatic Tests permits one to give conscious attention to the content of a message, while the words with which to express that message seem to come automatically.

The Sequencing Tests assess the ability to correctly reproduce a sequence of symbols; it is largely dependent upon visual and/or auditory memory.

Test 8. Auditory-vocal sequencing--the ability to correctly repeat a sequence of symbols previously heard.

Test 9. Visual-motor sequencing--the ability to correctly reproduce a sequence of symbols previously seen.

The test numbers correspond to the numbers in Figure I.

Raw scores for each test can be converted to both a language score and standard score through the use of the tables provided in the manual. Standard scores are useful in comparing the results of the various tests within the battery; such comparison is facilitated by visual representation of the scores in a psychodiagnostic profile.

Renfrew (1966) found that the ITPA gives the clinician too much information on some areas of language, such as visual, and no information on others, such as phonemic and syntactic.

Horner (1967) believes that the ITPA needs revision of

the encoding subtests. Both motor and vocal encoding may depend too greatly upon comprehension or decoding of test stimuli.

Empirical Approach

In the empirical or word centered approach to the study of language development, quantitative analysis is made of the occurrences of language, such as sentence length, vocabulary, and sentence structure in individuals or groups at successive chronological ages. Normative data obtained from such investigations are used as a basis for comparison in the evaluation of the performance of the language disordered child.

Johnson, Darley, and Spriestersbach (1963) are concerned with the word centered approach to language evaluation. The procedures they suggest provide results that can be compared with normative data based upon well-selected samples of respectable size and known composition. McCarthy (1954) has published a composite table showing age in months at which selected language items are reported in eight major studies of infant development.

Obtaining a Standard Language Sample

In order to evaluate language by the empirical approach, a standard language sample of speech needs to be obtained that will permit comprehensive analysis. The procedure for securing the primary sample was devised by McCarthy (1930).

Fifty utterances (not necessarily consecutive) need to be elicited from each person tested and they must be recorded

verbatim. This sample of the child's connected speech permits comparison with peers of like age and sex along at least three dimensions of language--length of response, structural complexity, and size of use vocabulary.

Nice (1925) was an early advocate of this procedure and apparently was the first who suggested the use of mean length of response as a measure of linguistic achievement.

The speech sample is usually obtained while alone with the child, no parent being present. Pictures, toys and objects may be used to stimulate spontaneous speech. The use of the materials should be adapted to each child. If the first picture or toy fails to yield a verbal response, another is tried. The 50 responses may be obtained by presenting a few items or by going through all items twice.

The first ten responses are not recorded. A tape recorder may be used to reduce the burden on the examiner. A response is considered a separate unit if it is set off by pauses.

The basic language sample serves as a basis for calculating a number of measures of verbal output. Johnson, Darley and Spriestersbach (1954) offer the following definitions for use in the determination of what constitutes an utterance:

A response is considered a separate unit if it is marked off from the preceding and succeeding remarks by pauses.

A remark is considered finished, if a child comes to a full stop, either letting the voice fall, giving interrogatory or exclamatory

inflection, or indicating clearly that he does not intend to complete the sentence.

When one simple sentence is followed immediately by another simple sentence with no pause for breath, the two are considered to comprise one sentence if the second statement is clearly subordinate to the first.

Remarks connected by interjections and conjunctions, such as "and", "um", "er", "uh", etc., are considered as separate remarks if the remarks appear to be clearly enumerative.

Measures of Verbal Output

Mean Length of Response. Nice (1925) suggested that, "this average sentence length may well prove to be the most important single criterion for judging a child's progress in the attainment of adult language."

McCarthy (1930) uses Mean Length of Response (MLR) as her primary measurement of children's linguistic achievement. She called the MLR, "the simplest and most objective measure of the degree to which children combine words at various ages." She has stated that no measure, "seems to have superseded the MLR for a reliable, easily determined, objective, quantitative, and easily understood measure of linguistic ability."

The procedure consists of counting the number of words in each response, totaling these numbers and dividing by fifty.

The following rules were developed by McCarthy (1930):

- a. Contractions of the subject and predicate are counted as two words.
- b. Contractions of the verb and negative are counted as one word.

- c. Hyphenated words and compound nouns are counted as single words.
- d. Each part of a verbal combination is counted as a separate word.
- e. Lookit is counted as one word if it occurs alone and functions as look; if followed by an object, it is counted as two.
- f. Each of the following is to be counted as one word: oh boy, my gosh, darn it, daggone it, all right, maybe, giddy-up, someone, lighthouse, birdhouse, high school, ain't.
- g. Each of the following is to be counted as two words: on yes, oh no, oh gee, let's see, on to, Christmas tree, kinda, oughta, hafta.
- h. When the same word or phrase is repeated several times consecutively, it should be counted only once.
- i. Words not completed by the child should be recorded as though they were completed.
- j. Noises should be counted only when they are considered to be an integral part of the sentence.
- k. Interjections not considered dictionary items and functioning solely to connect words or phrases should not be counted.
- l. All colloquialisms and neologisms should be counted.

Webster (1964) found that parents and teachers cannot accurately estimate measured MLR. Correlations between their estimates of the average number of words in the subject's responses and the measured MLR were low. However, teachers apparently could estimate MLR somewhat more accurately than parents.

In reviewing the MLR as a measure of expressive language development in children, Shriner (1969) found that the

methods which have been used have varied considerably and make it extremely difficult to make comparisons between studies. Comparisons cannot be made until the examiner can minimize and specify the manipulations and situational factors which could enter into experimental bias. If response length and variability are not studied with respect to both the experimental manipulations and the situational factors, then the usefulness of MLR is questionable. Even though examiners, given adequate training, can reliably prepare transcripts from tape replay and then analyze them reliably, 50 responses may or may not represent the child's "true" MLR.

Recent developments in descriptive linguistics, which emphasize the structural aspects of language, and the influence of behaviorists, who emphasize behavior modification, have contributed to a decline in use of MLR, for MLR provided relatively scant information about morphological and syntactical developmental changes which occur with age. More systematic research should permit an examiner not only to describe the developmental changes which occur in the child's language as he matures, but to describe adequately the manipulations and situational factors which bring about these changes. Further research also should provide better ways to assess and quantify both the state and growth of syntax and lexicon in children--factors which MLR does not assess.

Mean of Five Longest Responses. Davis (1937) first suggested that the mean of the five longest responses produced by the child might serve as a good indicator of what can be

thought of as the child's maximum linguistic skill, the best he can do in a given situation. This measure can be calculated by totaling the words in the five longest responses and dividing by five. The result can be compared with normative data.

Number of One-Word Responses. Many researchers have been interested in the number of one-word responses among the fifty produced by the child. They believe that a decreasing number of one-word responses may be taken as a good indicator of increasing language maturity in children. The number of one-word responses made by a given child can be compared with Templin's norms which represent the median number of one-word responses made by children in her standardization sample.

Measures of Language Structure

McCarthy (1930) was interested in the complexity of the utterances she obtained from the children in her sample in order to specify, "the stage of grammatical complexity that the child has reached" or how closely his sentence structure approximates adult conversation.

McCarthy used the following system for classifying children's remarks with regard to their structural (grammatical) complexity:

1. complete response
 - a. functionally complete, but structurally incomplete response
 - b. simple sentence without phrase
 - c. simple sentence with phrase or compound subject

- d. complex and compound sentence
 - e. elaborated sentence
2. incomplete responses--this includes fragmentary or incomprehensible responses

Each remark is classified and placed in one of the divisions and subdivisions listed above. The total number of remarks falling in each division and subdivision is calculated and divided by the total number of responses elicited to determine the percentage in each category. The percentages can be compared with normative data.

Williams (1937) was the first to develop a quantitative method for indicating the completeness and complexity of children's remarks. Templin (1957) also devised a quantitative method of representing sentence completeness and complexity. She assigned weights as follows to the categories of the McCarthy-Davis outline in order to obtain a structural complexity score (SCS):

Classification of Remark	Weight
incomplete responses 1a and 2	0
simple sentences 1b and 1c	1
simple sentences with two or more phrases or with a compound subject or predicate and a phrase 1c	2
compound sentences 1d	3
complex sentences or elaborate sentences	4

The appropriate weight is assigned to each of the remarks made by the child and totaled to obtain the SCS. This score can be compared with the norms reported by Templin. The SCS must be based upon 50 responses. It is not an average, but rather the sum of the weights assigned to 50

remarks. Comparison with the norms, therefore is not valid if the number of responses is different.

Templin (1957) has indicated that, "the quantitative complexity score is not quite so stable as other language measures used in her study. However, it has the advantage of being a quantitative measure and thus permits some comparisons of grammatical complexity of the obtained remarks with other language skills.

Darley and Moll (1960) reported that SCS values are less reliable than MLR scores when both are based on the same number of responses, possibly because the structural complexity of a child's speech is more variable from response to response than is length of response. Darley and Moll suggested that it is also possible that the arbitrary weights assigned in the Templin scheme to the different grammatical categories may not be entirely appropriate.

Darley and Moll (1960) conducted a study to answer the question of how large a sample must be elicited in order to, "obtain reasonably reliable scores representing the average length and the structural complexity of linguistic utterances." Speech samples collected from 150 five year old kindergarten children were used to evaluate the reliabilities of two language measures, mean length of response and structural complexity score, in relation to the size of the language sample. Each sample was divided into 10 five-response segments and MLR and SCS were calculated for each segment. Reliability estimates were obtained for the two language

measures for varying numbers of response segments. Darley and Moll say, "The reliability analysis suggests that MLR scores based on fifty responses are of adequate reliability for most research purposes." The reliability analysis of SCS values based on fifty responses may represent less precision than is desired in some situations. From the data presented in the study of Darley and Moll, the number of response segments necessary to achieve given levels of reliability can be estimated.

Minifie, Darley, and Sherman (1963) investigated the consistency, from day to day, of language performance of young children. The purpose of their study was to test the temporal reliability of seven language measures. Mean length of response, mean of the five longest responses, number of one word responses, standard deviation of the mean length of response, number of different words, structural complexity score, and the type token ratio.

Subjects were children selected on the basis of age, sex, intelligence, socioeconomic status, hearing, physical status, and language background. With picture cards as stimuli, a 50 response language sample was elicited from each child on three separate occasions. The language samples were tape recorded, and typed scripts were prepared from the tapes.

Intraclass correlation coefficients were computed to determine the temporal reliability of each measure. The results indicate relatively low temporal reliability for all

of the language measures investigated. The obtained correlations ranged from .52 to .82. The MLR measure appeared to be the most reliable of any of the measures.

There is a considerable discrepancy between the percentages of egocentric speech reported by Piaget (1926) and the percentages reported by McCarthy (1930 and Davis (1936). Perhaps this discrepancy could be due to the fact that the term "egocentric" is not clearly defined and each person attaches their own meaning to the term. A more likely cause of the noted discrepancies is the fact that the speech samples in these studies were collected in different ways.

In Shriner's and Sherman's (1967) research, samples of language from the speech of 200 children, ranging in age from two years, six months to twelve years, were used to obtain an equation for predicting the degree of language development as measured by psychological scale values. The predictors in the last equation are the mean of the five longest responses, the number of one word responses, the number of different words and the structural complexity score.

The basic purpose of their study was as follows:

"to examine, using the multiple-correlation procedure, the relationships of the above-mentioned measures, both singly and in varying combinations, to psychological scale values of language development derived from observer's responses to samples of children's language."

Psychological scale values of degree of language development for samples of children's language development provided the dependent variable of a multiple-regression

analysis. The six measures currently regarded as widely used to assess children's language development were the independent variables.

A prediction equation was determined and used for making a cross-validation analysis.

An intraclass correlation technique was used to evaluate adequacy of sampling with reference to the dependent variable (the psychological scale value). For this purpose, there were several samples and scale values for each of a selected groups of children.

The experimental materials were 300 language samples obtained from 200 children who ranged in age from 2.5 to 12 years of age with a mean age of six years.

The language samples were elicited from the children by a standard procedure. Each sample consisted of fifty responses to picture stimuli or interjected remarks or questions from the examiner.

For each fifty response sample they found the MLR, mean of five longest responses, number of one word responses, standard deviation of response, length by number of words, number of different words, and structural complexity score.

Shriner and Sherman derived the following raw score prediction equation in order to evaluate the accuracy with which ratings of language development might be predicted.

$$Y = 0.0576X_2 - 0.0458X_3 + 0.0737X_6 + 1.359 + 0.00659X_5$$

Y = the predicted score for degree of language development

X_2 = mean of the five longest responses

X_3 = number of one word responses

X_5 = number of different words

X_6 = structural complexity score

The standard error of estimate associated with the equation is 0.56.

This equation was used to predict scale values of language development for fifty language samples which constituted an independent group from the same population which the 100 samples were selected for the multiple-regression analysis.

Shriner and Sherman (1967) suggest that there are many important questions still left to be answered. The future usefulness in applying their results depends largely upon the feasibility of making generalizations about language development in children from whom language samples are taken. For several sets of samples obtained from the same children under the conditions of this study, psychological scale values are closely alike. This is not to say, however, that these language samples are truly representative of children's language development exhibited in such samples correlates with the degree exhibited in other situations.

As evaluated in the study by Shriner and Sherman, standard deviation of response length cannot be said to increase systematically with psychological scale values of language development. As children mature, more variability would be expected because of increasing sentence length. According

to their study, the only reasonable assumption is that the measure of standard deviation of response length is of no practical use in the evaluation of language development. Mean length of response, although deleted from the prediction equation, had a higher correlation with scale values than did any other predictor variable.

Shriner and Sherman believe that, "If a single measure is to be used for assessment of language development, this one thus would appear to be the most useful among those studied."

Measures of Vocabulary

Children's knowledge of word meanings and word acquisition has long served as an index of their language maturity. Investigators have based their judgments concerning progress in language development upon the age at which children first began speaking intelligible words, the number of different words they use at a given age and their ability to define, or indicate understanding of selected samples of words by usage at various levels of difficulty.

Age of First Word. It is often difficult to determine the beginnings of speech by trying to establish the child's first word acquisition. The first use of sound with meaning is usually considered to be the child's first word. Westlake (1951) stated, "It has been said that most children begin to speak when their parents think they do." The point is that most parents accept as words, sounds which may slightly resemble words and assuming meanings and ideas that are

probably not there at all.

Darley and Winitz (1961) reviewed the age of appearance of the first word as reported for 26 groups of children. They suggest from the results of these studies that the average child begins to say his first word by approximately one year. However, they question the reliability of such data by concluding,

"In summary, it would seem that the use of operational definitions of the first word have been so consistently different from investigator to investigator as to be an important source of error in the reported age of appearance of the first word. Coupled with it are other sources of error; the inadequacy of parental records; the fallibility of parent's memory; parent's wishful hearing; 'optimism'; and 'pride'; and the infrequency and meagerness of sampling of infants' vocalizations by observers other than parents."

Delay may indicate a serious physical, mental or hearing involvement. There is yet no evidence to indicate that age of first word has any utility for predicting severity of articulation defectiveness at some later date.

Number of Different Words Used. A procedure for assessing an individual's usage vocabulary may involve analysis of words used in a sample of fifty responses. The fifty responses may not include all the words a child can use, but it can be helpful to compare the number of different words a child uses under this specific condition with the number used by other children under a similar condition. A list of all the different words that are used in the fifty responses may be made and then compared with normative data.

Estimates of Size of Recognition Vocabulary. Research data has indicated that the number of words known by children increases as they increase in age. Smith (1926) shows that a child with an average I. Q. has one word at the age of 10 months. He increases the size of his vocabulary progressively until he has a vocabulary of 2562 words at six years.

Recognition Vocabulary Tests. From a large number of tests that might be used in order to derive an estimate of the extent of a child's recognition vocabulary, two have been selected for the present discussion.

Peabody Picture Vocabulary Test. The administration of the Peabody Picture Vocabulary Test by Dunn (1965) requires no special preparation other than complete familiarity with the test materials, including practice in giving the test prior to its use as a standardized measure. There are 150 pages with four pictures on each page. Each page is defined as a plate. For each plate, the examiner says a word and the child is to indicate to which picture the word refers. Norms are provided and both age equivalent scores (vocabulary age) and standard scores (vocabulary quotients) are provided. An alternate form is available.

Only 10 to 15 minutes are required to administer this test, although there are no time limits. The scale is administered only over the critical range of items for a particular child. The starting point, basal, and ceiling vary from testee to testee depending upon his age and vocabulary.

Complete instructions, norms and information about the

test construction, standardization, reliability, and validity are presented in the test manual.

Renfrew (1966) felt that the raw scores from the Peabody Picture Vocabulary Test (PPVT) were unreliable because correct chance guessing can increase the score too easily. However, with experience it is possible to detect when a child is beginning to guess. A little judicious questioning can confirm one's suspicions. This may help the examiner to estimate a more realistic vocabulary age.

Ammons Full-Range Picture Vocabulary Test. The Ammons Full-Range Picture Vocabulary Test (Ammons, 1948), both forms A and B, presents a sample of eighty-five words. As the examiner shows one of the sixteen cards comprising the test materials, the examiner speaks a test word and the subject points to the best picture on the page to show what the word means. Each word is assigned a point-level representing "approximately the mental age at which 50 per cent of a representative population would fail the word." The number of words to be presented from each plate is determined individually, words being given until three point-levels are passed consecutively and three failed consecutively.

The subject's score is the total of correct responses. This may be converted to a mental age, or one may compare the subject's raw score with normative data.

Functional Analysis

Piaget (1926) of the Jean Jacques Rousseau Institute at Geneva, originated the analysis of children's language

according to the functions of their responses in relation to their environment.

The following system, which is a modification by Davis (1937), can be used in analyzing the fifty responses that constitute the basic language sample.

1. Egocentric speech: The audience is disregarded in egocentric speech. There are two subclasses:
 - a. repetition or echolalia: The child repeats words or syllables for the pleasure of talking with no thought of talking to anyone or even of making sense.
 - b. monologue: Here, the child talks to himself as though thinking aloud without addressing the examiner.
2. Socialized speech: Here the child addresses the examiner, considers his point of view, tries to influence him, or exchanges ideas with him. Six subdivisions are used:
 - a. adapted information: The child offers his thoughts to the examiner, telling him something to interest him or influence his actions or actually interchanging ideas.
 - b. emotionally toned remarks: Exclamations, commands and threats are classified here.
 - c. answers
 - d. social phrases: These are responses which the child makes only in social situations, saying them parrot fashion.
 - e. questions
 - f. dramatic imitation: Here are classified all talk in imitation of adult conversation.

After each remark made by the child tested is classified, the total number of responses falling in each division

and subdivision is calculated. The sum is divided by fifty (or by the total number of responses elicited) to determine the percentage in each category. These percentages can be compared with normative data.

McCarthy (1930) summarizes some of the findings of Piaget as follows:

"Piaget reported a higher percentage of egocentric remarks in ages from three to five than at age six and stated that there occurs a definite socialization in the child's speech at seven to eight years of age. He implied that adult egocentrism is a symptom of psychological immaturity, which is outgrown with age."

Linguistic Approach

Although the linguistic approach is not new, it has only recently been utilized by researchers in the field of speech pathology. A better understanding of language and language disorders may be permitted by this renewed interest in the linguistic approach.

Chomsky (1966) and other contemporary linguists indicate that a theory of language based on generative grammar is the most fruitful from the point of view of understanding the nature of language, and the method of descriptive linguistics is useful in organizing the elements of a specific language.

In a descriptive grammar, linguistic utterances may be described on three hierarchical levels, the units of each level forming the elements of each succeeding level in the hierarchical systems. These levels considered are based on phonemic, morphemic, and syntactic schemes whose interlevel

relationships form the structure of language.

Brown and Fraser (1964), Braine (1963), and Miller and Ervin (1964) have investigated the earliest two word combinations of normally developing children and have identified the use of "pivot words" as the child's first grammatical construction. Brown and Bellugi (1964) have described the development of the noun phrase as a grammatical unit in children's language. All these investigators have used the formulation and terminology of Chomsky's transformational grammar in presenting and analyzing their data. It seems apparent that Chomsky has provided researchers with a linguistic tool well adapted to the study of children's language.

Chomsky (1957) proposes that,

"A finite set of linguistic utterances implies the existence of a set of rules governing the generation of these utterances as well as an infinite number of additional utterances permitted by the rules of the particular language."

With the knowledge of the rules that govern the speakers linguistic code and reference system, future predictions about his new forms and meanings can be made. 'Linguistic competence', is the implicit knowledge of the rules governing linguistic production and possessed by native adult speakers.

The linguistic code is composed of features which can be considered as representing contrasts or binary distinctions in the lexical, phonemic and grammatical categories. Each linguistic contrast signals contrast in meaning. The basic

grammatical categories are expressed formally in the linguistic structure of a language: lexicon, word order, derivation, inflection, and so on. Each language sets its own restrictions on the formal process or combination of elements used to convey its meaning. Learning the linguistic code of his own community is the task of the child as he develops language.

Man's use of the linguistic code in communication involves two major processes: comprehension and expression of language. In comprehending the meaning of language, two aspects of linguistic utterances are involved: the lexicon, or the vocabulary used, and the structure of the syntax and morphology. Chomsky (1957) stated, "It appears that the notion of understanding a sentence must be partially analyzed in grammatical terms." Although he cautioned against assigning meaning directly to grammatical devices, he stated, "We do find many important correlations, quite naturally, between syntactic structure and meaning." Chomsky (1964) believed that there is one underlying system basic to the decoding and encoding of language and that the grammar that represents the speaker's competence is involved in both processes.

McNeill (1966) believes that passive control (comprehension) occurs before active control (production) of the same features, and not that some features are comprehended before any features are produced. If this is true, one would further assume that the expression of grammatical patterns systematically and lawfully emerges in the same order as the

understanding of them. It would be of value, then, to study the development of language comprehension.

Many studies have been made of children's acquisition of language rules. Most of these studies have been concerned with children's expressive language. In these studies, empirical measurements have been made of the lexical and structural elements of language; and from the results, inferences have been drawn concerning fundamental rules and processes which govern the learning of expressive language.

Only a limited number of studies have been made of children's comprehension of linguistic structure either from the point of view of its development or as it relates to expression. Most of the studies of language comprehension have focused primarily on the understanding of vocabulary and not on the comprehension of structure.

Because of the limited number of studies, there is a scarcity of information regarding the development of auditory comprehension of language structure.

Carrow's (1968) study was undertaken to assess the auditory comprehension of language structure by children and to obtain information about the sequence in which children learn to comprehend the lexical and grammatical aspects of language. The report presents preliminary findings and tentative conclusions.

Carrow used 159 children, 2-10 through 7-9 years of age, who had I. Q.'s above 80, were free from severe speech or hearing problems and were monolingual. She divided them into

nine age groups, each representing a six month age span. The groups varied in size from 11 to 22 children, with an unequal number of boys and girls in seven of the groups. In the total groups there were 86 boys and 73 girls.

Her test was designed to permit the assessment of oral language comprehension without requiring language expression from the child. The test consists of a set of plates, each of which contains one or more black and white line drawings; the pictures represent referential categories and contrasts that can be signaled by form classes and function words, morphological constructions, grammatical categories and syntactic structure.

The plates which test the structural contrast provide two or three pictures, one of which represents the referent for the linguistic form being tested; the alternate picture(s) represent(s) the referent(s) for the contrasting linguistic form(s). The form classes and function words tested by the instrument are nouns, verbs, adjectives, adverbs, and prepositions. Morphological constructions tested are those formed by adding "er" and "est" to free morphs, such as nouns, verbs, and adjectives. Grammatical categories that are evaluated involve contrasts of case, number, gender, tense, status, voice, and mood. Syntactic structures of predication, complementation, modification, and coordination are also tested.

Sample plates and corresponding stimuli for testing auditory comprehension are reported. A detailed description of the forms and contrasts tested is also given with the age

group at which 60 per cent of the children comprehend each linguistic item tested.

Some of Carrow's findings were not consistent with previous studies and experiences. The test results seem to indicate that one category of form classes or function words does not develop before another. Comprehension varies for items within each category. Comprehension seems to depend on the particular linguistic structure used, on the referent for the linguistic structure and possibly on the frequency with which that particular item is used in the language.

It appears that some grammatical contrasts are more difficult than others. The children seem to comprehend earlier those categories which are fundamentally unmarked and specified, such as present tense and singular number, and to have more difficulty with grammatical contrasts which are derived and marked, such as past or future tense and plural number.

The increase in score between age groups at the older age levels (5-6 to 7-0) was not as great as that at the lower age levels. While it appears that the greatest development of language comprehension occurs between the ages of 2-0 to 4-9, it may be that the test did not include sufficient items to discriminate comprehension development at the upper age levels.

This approach to the study of auditory comprehension of language structure in children seems to offer a very fruitful beginning. Further work needs to be carried out on the instrument; and more children need to be studied. These

preliminary findings offer considerable direction in the search for better understanding of the development of children's linguistic structures.

Menyuk (1964) was also interested in the linguistic approach. The purpose of Menyuk's study was to use a generative model of grammar to describe and compare the language of children with deviant and normal speech in an attempt to obtain an adequate description of deviant speech.

Menyuk compared normal children with language delayed children, identified by speech clinicians and reported that the language delayed groups manifested more omissions in their transformational structures than normal children. Menyuk emphasized that,

"The term 'language-delay' was probably a misnomer and suggested that there was not only a developmental lag, but a qualitative difference between the language of normally developing and deviant children."

The child with normal speech rapidly acquired structure which required increasingly complex rules for their generation over the two to three year period. The grammatical usage of the two groups differed in that the children with normal speech used more transformations and the children with deviant speech used more restricted forms and used them more frequently. The children with deviant speech repeated with omissions, or just repeated the last words of the sentence. Non-repetition was significantly correlated with sentence length. The repetition of sentences by children with normal speech seemed dependent on the structure of the sentence, and

for them non-repetition was not significantly correlated with sentence length.

It was hypothesized that differences found in the use of syntactic structures and in the repetition of these structures between two groups might be due to differences in how the coding processes for perception and production of language are used. Both in use and repetition of syntactic structures, the children with deviant speech formulated their sentences with the most general rules, whereas children with normal speech used increasingly differentiated rules to generate syntactic structures as an increasingly mature population was observed. Menyuk classified syntactic errors into substitutions, omissions and redundancies.

The linguistic approach also interested Lee (1966). Lee points out that, "Until recently little emphasis has been placed on the linguistic aspects of children's language problems." Yet we teach vocabulary and grammatical forms, the substance of a symbol system, in language disorders. The speech clinician should be concerned with the language as a linguistic structure that has phonemic, semantic, syntactic, and morphological features. Children with delayed speech and language often present problems in all areas. For this reason, it would be important for the speech clinician to study the syntactic structures in children's language.

Menyuk's (1964) study was followed by a study by Lee (1966) who wanted to explore more fully Menyuk's observation that the "language delayed" child is not just slower in

syntactic development, but is proceeding in a bizarre manner. Lee's investigation is presented in four parts: (1) the organization of a theoretical construct of the development of early syntactic structures in normal children. It is referred to as Developmental Sentence Types, (2) the analysis of a tape recorded speech of a normal developing child in terms of the Developmental Sentence Type, (3) a similar analysis of a speech sample from a language delayed child enrolled at the Northwestern University Speech Clinic, and (4) a comparison of the sentence types used by the two children. This analysis could help to determine whether this construct is a feasible tool for uncovering specific areas of abnormal syntactic development in atypical children.

Lee has four levels of the Developmental Sentence Types. She believes that,

"A child's acquisition of adult rules of syntax progresses in a series of steps which are cumulative, those at a higher level depending upon success at earlier stages."

Level one is the two word combination. The first word combinations of children are not random, but follow a simple grammatical pattern, commonly called the pivot-open class construction. The child's vocabulary is composed largely of words with concrete, lexical meanings. This vocabulary forms a large open class of names and labels to which he can add indefinitely as he begins to symbolize the objects, activities, and attributes of the world about him. These pivots change from child to child, but there is surprising similarity

among the children whose language development has been studied in detail.

Beyond the early pivot-open class combinations, children may continue to give other two word utterances which are more imitative of adult grammar and they are called fragments.

Level two is the noun phrase. The noun phrase is part of the early development of children's syntax. The development of the noun phrase establishes the grammatical unity of this construction. Once developed, the entire phrase may be moved from one position to another in a longer string or be left out entirely and replaced by a pronoun.

Constructions are designated as level three of the Developmental Sentence Types. In the designative constructions, the child seems to differentiate between pivots which can be incorporated into the noun phrase and pivots which must precede or introduce it. Once the noun phrase has been developed as a cohesive grammatical thought, other two word combinations may be expanded by inserting articles, possessives, quantifiers and adjectives into their proper position, thus making noun phrases of the single nouns. Once the noun has been expanded into a noun phrase, it permits further expansion of a two word predicative into the longer predicative construction.

In verb phrase construction, the verb must be followed by a noun phrase, a prepositional phrase, a locator, an adverb, or some combination of these forms to produce a complete verb phrase construction.

Level four of the Developmental Sentence Types is the category of sentences. The designative sentence is an expansion of the designative construction by the addition of is between the designative word and the noun phrase which follows it.

The predicative sentence is an expansion of the predicative construction by the addition of 's.

The actor-action sentence is a combination of the noun phrase and the verb phrase which were developed independently of one another.

In comparing the speech samples of the two boys, Lee found that the two children showed marked differences in the sentence types which they formulated. The "language delayed" boy was not slower in following a normal pattern of development, but was failing to produce certain types of syntactic structures. Specific areas of linguistic deficiency isolated by developmental sentence types could be used as training goals.

The developmental sentence types present a theoretical construct of early syntactic development in children's language. Beginning with the simplest two word combinations, this construct traces the gradual emergence of phrase structure rules in children's grammar and the formulation of kernel sentences, from which transformational structures can be derived.

Lerea (1958) was also interested in the linguistic approach to the appraisal of language development. The

Michigan Picture Language Inventory was originally designed by Lerea to "develop a standardized procedure which would measure the normal and language retarded child's ability to express and comprehend vocabulary and language structure." It visualizes "linguistic meaning" as involving at least two components: lexicon (the lexical meaning of a word as indicated in a dictionary) and structure (the relationships between lexical elements in a particular utterance).

The test includes a Picture Vocabulary Inventory consisting of 35 items, five at each of seven age levels (ages three to nine). Each test item is pictured on a card together with two additional answers. The number of key items named by the child constitutes his vocabulary-expression score. When the examiner names the key items and the child points to the appropriate pictures, his vocabulary-comprehension score is obtained.

The Picture Language Structure Inventory is designed to indicate the child's grasp of the structure of syntax of English. The examiner first describes to the child each of the fifty cards, broken into classes generally resembling nouns, verbs, adjectives, and adverbs. Then the examiner attempts to elicit an oral response to the key items on the card. The total of correct responses comprises the language-structure-expression score.

The pictures are shown a third time to derive a measure of language-structure-comprehension of singular and plural, present and past tense, comparative and superlative forms of

adjectives, possessive and demonstrative pronouns, and relational items such as prepositions.

In his initial standardization of the test, Lerea found that the test possesses validity as a diagnostic tool because it yielded scores of increasing magnitude at successive age levels and also demonstrated differences in performance between groups of children known to vary markedly in their language skills. He found that the ratios between such scores might also be of diagnostic significance. The performance of 140 normal children from ages three to nine on the inventory indicated that both comprehension and expression appeared to be a positive function of age. The computed reliability and validity measures suggest that these picture language inventories possess sufficient sensitivity eventually to become effective supplementary tools in the diagnosis of language retardation.

Wolski (1962) administered Lerea's Michigan Picture Language Inventory to 180 normal children--30 boys and 30 girls at each of three age levels; four, five and six years. On both the vocabulary and the language structure tests, mean scores in expression and comprehension increased significantly with age. Mean vocabulary comprehension scores and mean language structure scores exceeded those for expression for both sexes at all three ages and the mean scores for articles and demonstratives did not consistently increase with age.

The linguistic approach to the study of language in

children seems to offer a very good beginning. Future work needs to be studied. These first findings show the need to search for better understanding of the development of children's linguistic structure.

Engler and Hannah (1967) have also attempted a linguistic approach in order to develop normative data. Their interest was in what was assumed to be adequate language. In a pilot study undertaken in three public schools in Manhattan, Kansas, "normal" children were studied. This group consisted of one-half boys and one-half girls who were between 90-110 on the Otis Quick-Scoring Mental Ability Test and had never been tagged as "different". The classroom teachers selected the students.

Two experimental rooms were set up in each school; a holding room and an interview room. Both rooms had concealed tape recorders. The holding room had one table with a group of randomly selected toys on it. The ten children to be used as subjects were brought in. They were free to play with any of the toys and their conversations were recorded. Two children at a time were taken to the interview room. They were shown a portion of the Thematic Apperception Test pictures and asked to talk about them. All responses were recorded. Thirty-five hours of recordings were obtained for analysis. Engler and Hannah used the so called "slot-filler" analysis. They believed that children use many fillers to go into various syntactic slots which they call subject, verb and post verbs. Each tape was transcribed and the fillers marked as

they were used and not as they should be. Cards which portrayed the slot-filler model and categories of syntactic slots were used for analysis and tallying. In this pilot study, there was a total of 26,000 cards for analysis. The results were offered as tentative normative data on "normal" language usage.

Behavioral Approach

The behavioral approach to the diagnosis and appraisal of language disorders considers the language deficit the problem itself, rather than a symptom of some underlying difficulty. All behavior, including speech and language is seen as developing out of the interaction between the current behavior of the organism, however primitive or limited, and the environmental antecedents and consequences of behavior, as well as, the history of such interactions. Language modification, therefore, proceeds by a functional analysis of the behavior-environment interactions and the development of a program to modify the environment and thus change behavior.

Skinner (1957) has derived an approach that is dictated by the task of modification itself. The first step is a simple description of the topography of the language subdivision of human behavior. When this has been accomplished, in at least a preliminary fashion, identification of the conditions relevant to the occurrence of the behavior is undertaken. When these conditions have been identified, then the dynamic characteristics of verbal behavior, within a framework

appropriate to human behavior as a whole, can be taken into account. At the same time, the behavior of the listener has to be considered. In relating this to the behavior of the speaker, the parameters of the verbal episode are taken into account.

Once a repertoire of verbal behavior has been set up, a host of new problems arise from the interaction of its parts. Verbal behavior is usually the effect of multiple causes. Separate variables combine to extend their functional control, and new forms of behavior emerge from the recombination of old fragments. All of these have appropriate effects upon the listener, whose behavior then also calls for analysis.

The speaker also reacts to his own behavior in several important ways. Part of what he says is under the control of other aspects of his verbal behavior. It is this interaction that is referred to when it is said that the speaker qualifies, orders, or elaborates his behavior at the moment it is produced.

Skinner indicates that one important feature of the analysis is that it is directed to the behavior of the individual speaker and listener; no appeal is made to statistical concepts based upon data derived from groups. Even with respect to the individual speaker or listener, little use is made of specific experimental results. The basic facts to be analyzed are well known to every educated person and do not need to be substantiated statistically or experimentally. The emphasis is upon an orderly arrangement of well-known

facts, in accordance with a formulation of behavior derived from an experimental analysis of a more rigorous sort. The extension to verbal behavior is thus an exercise in interpretation rather than a quantitative extrapolation of rigorous experimental results.

Skinner says, "The lack of quantitative rigor is to some extent offset by an insistence that the conditions appealed to in the analysis be, so far as possible, accessible and manipulable." He thinks that the formulation is inherently practical and suggests immediate technological applications at almost every step.

Sloane and MacAulay (1968) state that, "Behavior refers to something observable that a person does. To be observable, an event must produce some effect that can be reduced to simple sensory impressions to which other humans can respond." This does not mean that all behavior must be visible to the untrained eye. The major requirement is that different observers (perhaps after training) be able to agree as to whether or not an instance of the supposed behavior occurred.

It is usually useful to assume that behavior is controlled by two sets of variables. One is related to the structure of the person and is a function of genetics or past history, and current conditions that may affect structure. The second set of variables, often called "psychological," consists of the behavioral history of the individual and the current environment.

Sloane and MacAulay note that the analysis of behavior

has two major characteristics. The first is that the dependent variable has been defined as a observable behavior rather than as some mentalistic concept or hypothetical construct. The second major emphasis suggests that behavior be viewed as a function of environmental factors.

Schiefelbusch (1963) says,

"In spite of the physiological emphasis which is usually built into diagnostic processes, rehabilitative procedures almost invariably refer to environmental modifications aimed at behavioral change. A systematic approach from an environmental point of view would initially involve the identification of relevant variables associated with retarded functioning and with methods for effecting behavior change. From this point of view communication problems can be investigated as problems of verbal learning; and educational or clinical procedures can be considered learning programs within an interpersonal setting."

Spradlin (1963) believes that the evaluation measures most commonly used to investigate speech and language reveal, "a lack of precision in estimating reliability and in determining equivalence or results obtained by different procedures." He also states that, "None of these measures or evaluation procedures are systematically derived from, nor related to, a general behavioral system." He believes that such a behavioral system, "provides for more adequate evaluation of speech and language by focusing on important areas which would not be sampled in a less systematic approach." This system also provides for an economy in systematic evaluation by indicating the situations in which the test constructor is sampling behaviors which are theoretically equivalent.

The Parsons Language Sample is an example of a behavioral approach to the appraisal of language. The behavioral system used in developing the Parsons Language Sample by Spradlin (1963) was drawn primarily from Skinner (1957). Spradlin chose the Skinnerian classification system of mand, tact, and verbal behavior under the control of verbal stimuli because of its emphasis on the environmental conditions under which language occurs.

Mand behavior includes such behavior as demanding, commanding, requesting, and asking. Usually the reinforcement is rather specific and it is often related to specific drive operations.

Tact behavior, unlike mand behavior, is primarily under the control of discriminative stimuli rather than under the control of specific drive operations. Certain responses will be followed by reinforcement only if they occur in the presence of specific discriminative stimuli.

There are three types of verbal behavior under the control of verbal stimuli.

1. Echoic response--the repetition of a response that has been made by another person.
2. Intraverbal behavior--are primarily under the control of verbal stimuli, but have no point to point correspondence to them.
3. Comprehension--a construct which is also based on differential responses or on behavior emitted by the subject.

The Parsons Language Sample (PLS is based on a descriptive model which assumes that only observable language

responses are being sampled and evaluated in various situations.

Certain fundamental assumptions were made in this research. These can be summarized as follows:

1. The study of language and communication will be facilitated if the terms are defined so that the events to which they refer can be observed, classified, and measured, that is, defined operationally.
2. Language and communication behavior is determined by other events which can be objectively described, classified, and in many instances, manipulated.
3. Language behavior is learned and as such is subject to the same principles as other behavior.

The method used in obtaining a sample of language behavior in the PLS involved classification of language behavior and the preparation of items to sample language according to these several classifications. The guiding considerations used in the classification of language were, (a) whether the language was vocal or non-vocal and (b) the conditions evoking or controlling its occurrence.

In line with the rationale, the following seven subtests were developed.

1. Tact. In this subtest the examiner presents an object or picture and asks, "What is it?" The controlling stimulus is the picture or object and the correct response is vocal.
2. Echoic. In this subtest the child is asked to repeat digits, words, and sentences. The controlling stimuli are vocal and bears a point-to-point relation to the stimulus.

3. Intraverbal. The examiner asks the child questions such as, "What do you do when you are hungry?" The stimulus is vocal, the response is vocal, but unlike the response in the previous subtest, it does not bear a point-to-point relation to the vocal stimulus.
4. Comprehension. The examiner asks the child to execute a series of commands. The commands are given by speech, by gestures, and by speech and gestures combined. Thus the controlling stimulus can be either vocal or non-vocal. The correct response is a motor act.
5. Echoic Gesture. The examiner demonstrates a series of motor acts which the child repeats. The controlling stimuli are non-vocal; the response is non-vocal and bears a point-to-point relation to the stimulus.
6. Intraverbal Gesture. The examiner asks the child a series of questions which can be answered by gestures. The controlling stimulus is vocal; the response scored is non-vocal.
7. Mand. The examiner presents the child with a series of situations in which the appropriate response would be to ask a question or make a request. For example, the examiner might ask the child to draw a picture but fail to make paper and pencil available. A correct response could be either a vocal or a non-vocal request.

Three subtests measure vocal behavior, three measure non-vocal, and one, the mand subtest, measures both vocal and non-vocal behavior.

Spradlin (1963) says that, "Its importance as a measure does not rest on an inference concerning implied internal processes, but on empirical relationships between scores based on language sampled in a test situation and language external to the test situation."

The PLS has not been used a great deal with

non-institutionalized children. The research took place with mentally retarded children at Parsons State Hospital, Parsons, Kansas.

This study offered the following conclusion:

"In brief, it appears that when the examiner training procedures described are used, the PLS yields reliable data which are relatively unaffected by examiner bias (with the exception of the mand test). The vocal and non-vocal subsections seem to be sampling relatively independent behavior. Finally, the PLS subsection scores are useful in predicting at least a limited range of non-test language behavior."

Horner (1967) concluded in his research that, "There is a need to revise the directions for the PLS intraverbal gesture subtest. The response required for a successful performance is not made clear to the subject.

Eclectic Approach

It is recognized that other systematic approaches to the appraisal of language development have been used which adhere to no one rationale, but draw upon two or more of the approaches previously described.

Wood (1964) suggests that the language evaluation can be considered a prognostic tool as well as a diagnostic one.

Examiners may differ in the procedures used to evaluate language development, but their objectives are much the same. Wood gives the following objectives:

1. The examiner must be alert to indications of the way in which the child thinks--how he perceives the world around him, how he organizes concepts, and how he formulates ideas. In terms of language development, this

thinking process may be referred to as 'integrative language'.

2. The examiner is interested in how the child responds to the information he receives--whether or not he comprehends the meanings of words and to what extent he understands what is said to him. This is called 'receptive language'.
3. The examiner is concerned with the child's ability to express his ideas verbally, accuracy of articulation, size of vocabulary, and complexity of sentence structure. This is called 'expressive language'.

Language evaluations usually begin with an informal, non-directive and sometimes fairly unstructured approach. The child may be brought into a room containing toys and objects of interest to children. He is permitted to play with the objects that are of interest to him. It is important to see what objects he selects and how he selects them, whether or not he plays constructively or in a meaningless manner, his use of gestures or facial grimaces to express himself and the way he arranges materials and the length of time he can occupy himself with these activities.

Wood states that, "There are certain factors that remain fairly constant in the evaluation of language development."

1. The evaluation of speech and language requires a multi-professional approach. No one professional discipline is inclusive enough to provide answers to the total problem.
2. Test items used to evaluate speech and language development may be lifted from larger test batteries, and when used in isolation or out of context, the scores must be considered inferential and highly experimental.

3. Language evaluations are not designed to provide the examiner with absolute scores as much as they attempt to tap the child's areas of abilities as well as his disabilities, his strengths as well as his weaknesses.

Bangs (1961) presented a systematic approach to the study of the language delayed child before speech habilitation. Her procedures were offered as a starting point or a pattern for diagnosticians who wish to obtain information which will be valuable to speech clinicians who are training children with language problems. Her evaluative procedures are used in (a) the initial interview, (b) in an observation class, (c) in psychometric testing, and (d) in a language and speech training program.

In the initial interview, the pertinent information is recorded. The case history is a part of this interview. The clinician should also obtain or secure permission from the parent to request any other findings that may be related to the case study.

If the initial interview doesn't indicate that the language delay is due to bilingualism, hearing loss, or mental retardation, then an observation class might be helpful. The clinician will want to study the interaction of each child with his peer group as well as with adults. Other kinds of information which will be of value to the clinician are noted and recorded on the observation class record.

The present standardized intelligence tests, by themselves, cannot give a completely valid measure of the mental age level of children with language delay. It can be a

valuable tool for determining the educational starting point for these children.

Bangs used several sources for her intelligence test. The four factors explored by the test items are (a) language (ideation, comprehension, and usage); (b) memory-attention (visual and auditory); (c) visual-motor perceptual skills; and (d) social maturity. She chose the areas because they appeared to be the modalities of learning which the teacher is called upon to train.

Ideation is the ability to solve problems other than those involving primarily visual-perceptual skills or immediate memory. The test items can be performed without verbal instructions and without oral response. There are two tests: picture association and pictorial analogy.

The test items for comprehension of oral language are presented with oral instructions, but do not require an oral response. The tests are Ammons Full-Range Picture Vocabulary Test by Ammons (1948) and subtests from Binet Form L (BL) and Binet Form M (BM).

The subtests for language usage involve ideation and oral comprehension, but only oral responses are scored. Sentence length and syntax are recorded by the speech clinician on the observation sheet. The items test just a small part of oral communication. The subtests are from Binet Form L, Binet Form M, and Gesell.

The memory-attention tests attempt to measure a child's ability to attend to visual or auditory stimuli and then

recall the symbols from memory. The two tests are tests of visual memory and auditory memory.

Tests of visual-motor-perception attempt to measure a child's ability to observe a specific design or pattern and then reproduce it. Block design and block patterns are used as tests.

Bangs uses paper folding and the Draw-a-Man Test by Goodenough (1926) as tasks of memory-attention and visual-motor-perception. The Vineland Social Maturity Scale by Doll (1946) is used to describe all phases of social adjustment.

A profile of each child's performance is recorded on a graph which lists the test items across the abscissa and chronological age in four month intervals along the ordinate. The profile helps explore two questions: (1) Is the child's language development commensurate with his other modalities of learning? and (2) What are the assets and liabilities of the child as measured by the battery?

As soon as the observation class clinician and psychologist complete their study a client staffing is held. Recommendations for the future training and medical attention should come from the entire group, because children with disorders of language symbolization usually demonstrate physical problems and language behavior which are too complex to be evaluated by one person.

Myklebust (1954) uses an eclectic approach to appraise language development. Myklebust explores inner language, receptive language, and expressive language. Inner language

is evaluated first because other language functioning assumes a minimum of inner language. An object test is used for this appraisal. Myklebust uses objects for testing because they seem more suitable than pictures. They are more concrete and they can be manipulated and related to each other. This is especially essential for appraising inner language. The administration of this test should be adapted to the child. Various responses to the object test situation can be observed. Some children will structure the objects in a highly meaningful and significant manner. Such behavior reveals that inner language is present. The child has acquired symbolic behavior; he can engage in mental trial and error processes and arrive at logical conclusions. He has internalized environmental experience and he can use ideation expressively.

The test of receptive language capacity follows immediately after the child has performed with the objects. Receptive capacity is tested in various ways. Usually it is done with the simultaneous use of vision and hearing. The examiner might say, "Give me the daddy," "Where is the stove?", or "Put the mommy on the bed."

Ability to use language expressively is evaluated last. This is done by having the child engage himself playfully with the objects. As the child plays, the examiner makes comments to elicit expressive language. Considerable encouragement and simplification sometimes are necessary. One of the simplest expressive functions is naming. The ability to name, however, should not be interpreted as the ability to

use language normally. .

The basic principle of the object test is that the child will use language capacities most effectively in association with an activity in which he is sincerely interested. Myklebust suggests that it is more successful than asking the child's name and more formalized questioning.

An eclectic approach was also devised by Mecham (1959). Mecham developed the Verbal Language Development Scale which is an extension of the Vineland Social Maturity Scale by Doll (1946). An informant gives a description of the child's communicative behavior. The child is given full, partial or no credit for specific items in the scale, depending upon whether the behavior in question is routinely or habitually performed by the child, is in a transitional or emergent state or "is merely cursory or is entirely absent." The scale consists of fifty items covering ages 0-1 to 16 years; six items pertain to listening, thirty-one to speaking, five to reading, and eight to writing. The total points that are earned are converted to language-age equivalents provided in the manual.

Renfrew (1966) suggests that interesting material is obviously necessary; colored pictures are more attractive than black and white ones. The presentation of materials must be varied to retain interest and attention. This can be accomplished by a series of pictures followed by a series of questions or keeping the most attractive materials to the end. The examination should be planned so that the child

will enjoy participating throughout the whole session. This gives as complete a picture of his language can be gained in one session.

Renfrew made some suggestions for examining the areas of language development. These suggestions are designed to make a profile of the child's performance comparing it in each area with that of "normal" children between four and eight years, so that one can see in which areas of spoken language the child performs within the range of achievements for his age and in which areas it is delayed.

The diagnostic examination has two sections. The first is general, relating to intelligence, hearing, social maturity, and general motor ability. The second section is related to basic speech skills like auditory memory and discrimination, consonant and vowel imitation, the structure and function of the speech mechanisms and their precision and speed in movement during speech.

The attainment profile consists of five areas of spoken language; (1) articulation, (2) vocabulary, (3) information, (4) grammar, and (5) understanding.

Renfrew tests articulation first so that the responses in subsequent tests can be interpreted. She suggests that the examiner look for a phonemic pattern as articulation is assessed.

A vocabulary test follows the articulation examination. A modified version of the Watts Vocabulary Test for Young Children is used. This test requires only one word answers

and there are very few alternatives. Almost half of the answers are nouns and the rest are distributed among verbs, adjectives, and prepositions. Norms are available for this test for the age range of 4 to 8.5 years.

If the child is inarticulate, the Peabody Picture Vocabulary Test is used. With children over nine years of age, the Mill Hill Vocabulary Test, in which the testee is asked to define each item, is employed.

Renfrew believes that it is very difficult to find suitable tests for the syntactic areas of language. She feels that the method of analyzing fifty spontaneous vocalizations of the child in a free-play situation is too time consuming to be useful and a more rapid method of eliciting speech is necessary. Two different methods of eliciting responses are used to yield samples of the semantic and syntactic areas of language.

1. Action Pictures Test--the child tells everything he can about the picture. Each answer is recorded as the child gives it and scored later from two different points of view: (a) how much accurate information has been given regarding the action in the pictures, and (b) how well the child has constructed sentences, followed grammatical rules, and used appropriate tenses to match the form of the question.
2. The Bus Story--the purpose of this test is to analyze language from a flow of speech. The examiner tells the story as she points to each of the twelve pictures in turn. The child retells the story and it is recorded. The twelve longest sentences are then analyzed to find the number of complete sentences, the number of compound sentences and the number of simple

sentences. There are norms available from 4-8 years of age.

The last two tests in Renfrew's evaluation procedure may give samples of the child's use of language which can be analyzed for both grammar and information. Often one of these tests appeals to the child more than the other and the higher of the two results is used to calculate his information age and his grammar age.

Discussion

A review of the literature suggests there is considerable divergence of opinion about language problems and methods of appraising language development. In the present paper consideration has been given to five different approaches to the study and appraisal of oral language development.

The first approach was concerned with the formulation of theoretical models. The theoretical model approach is descriptive and allows classification and comparison, but it is not diagnostic. It provides visual representation in a psycho-diagnostic profile. It does not provide any measure of the current rate of language acquisition, however. The samples of language acquired for appraisal are obtained in a formal situation and this may not be representative of the client's language. Additionally, an unnecessary amount of information on some areas of language is provided and not enough information on other areas is derived. Renfrew (1966) criticized the ITPA because too much information is found for the visual area and not enough information of the phonemic

and syntactic areas. Horner (1967) believes that the encoding test on the ITPA needs revision because it depends too greatly upon comprehension or decoding of test stimuli.

The empirical or word centered approach uses normative data obtained through cross-sectional and longitudinal studies of different aspects of language reception and comparison. The approach is utilitarian and can be used by all speech clinicians, although it is very time consuming. This is not a diagnostic approach, but it does allow for classification and comparison. The methods in the empirical approach vary considerably and that makes it extremely difficult to make comparisons between studies. Comparisons cannot be made until the examiner can minimize and specify the manipulations and situational factors which could enter into experimental bias. If response length and variability are not studied with respect to both the experimental manipulations and the situational factors, then the usefulness of the measures is questionable. There seems to be a lack of precision in estimating reliability and in determining equivalence or results obtained by different procedures.

The Mean Length of Response gives scant information about morphological and syntactical development changes which occur with age. It also should provide better ways to assess and quantify both the state and growth of syntax and lexicon in children.

The Structural Complexity Score is not as stable as other measures. It is more variable from response to

response than the Mean Length of Response. The weights assigned in the Structural Complexity Score might not be appropriate.

The vocabulary tests only permit the children to talk when you want them to. Chance guessing will raise the score.

New normative data for this approach are needed. Research findings suggest there is relatively low temporal reliability among the measures of the empirical approach.

The linguistic approach is the application of the principles of linguistic theory and methods of linguistic analysis to the study of language development. This approach is diagnostic. Some of the linguists (Menyuk, 1964) offer training goals. Prescriptive measures for remediation can be generated from most of the linguistic studies. There appears to be important correlations between syntactic structure and meaning in this approach. Chomsky (1957) believes that the linguistic approach is good because there is one underlying system basic to the decoding and encoding of language and that the grammar that represents the speakers competence is involved in both processes.

There seems to be some fundamental differences in theory among linguists, which remain to be reconciled. Although the linguistic approach is not new, it has only recently been utilized by speech clinicians in a small number of studies of language disorder. More investigations with language impaired children must be undertaken as well as a compilation of normative data on unimpaired children. There is a scarcity of

information regarding the development of auditory comprehension of language structure. A complete study of the development at the upper age levels needs to be done.

The behavioral approach to the appraisal of language disorders considers the language deficit the problem itself, rather than a symptom of some underlying difficulty. One feature of this type of analysis is that it is directed to the behavior of the individual speaker and listener; no appeal is made to statistical concepts based upon data derived from groups. Spradlin (1963) says that the behavioral approach provides for more adequate evaluation by focusing on important areas which would not be sampled in a less systematic approach. It provides for an economy in systematic evaluation by indicating the situations in which the test constructor is sampling behaviors which are theoretically equivalent. The terms are defined so that the events they refer to can be observed, classified and measured.

The behavioral approach would be more useful in words or phrases but difficult for sentences. Very little work has been done with this approach past words and short phrases. It would appear that some type of normative data are needed with which to contrast deficient behavior and to establish in what direction you wish to modify the behavior.

Horner (1967) believes that the Parsons Language Sample needs to be revised and that it needs to be administered to children other than those that are mentally retarded.

The eclectic approach adheres to no one rationale, but

draws upon two or more of the approaches that have been discussed previously. There is not yet a comprehensive method that accommodates all points of view. The work of Bangs and Renfrew and others that have drawn from several of the major rationales for language is encouraging.

In view of the fact that the major approaches to the study and appraisal of language each possess some shortcomings: it would seem advisable to draw upon two or more of these approaches if our study of children's language is to be as valid as possible. Thus, in view of the present status of our knowledge of children's language, its acquisition, and its disorders, the eclectic approach would appear to be the most useful.

Summary

It was the purpose of this paper to investigate contemporary writings on oral language development, in an effort to acquire understanding as to how the approaches to the study and appraisal of oral language development relate to one another and to note their respective merits and shortcomings as reported by others.

The literature has revealed that researchers have studied the many parameters of language and have obtained a variety of methods for appraisal, but little has been done to relate these approaches to one another.

The review was divided into five sections, each describing a different approach to the study and appraisal of oral

language development. The various theories that have been advanced place the emphasis on different aspects of the tremendously complex process called language.

The first approach to the study and appraisal of oral language development to be considered was concerned with the formulation to theoretical process-descriptions of language in terms of neuropsychological systems of learning. This approach utilizes theoretical models of language that explain the encoding-decoding process of linguistic data and the levels or stages of the processing system. Under this section, the Illinois Test of Psycholinguistic Abilities was reviewed as an example.

In the empirical or word centered approach to the study of language development, quantitative analysis is made of the occurrences of language, such as sentence length, vocabulary, and sentence structure in individuals or groups at successive chronological ages. Normative data obtained through cross-sectional and longitudinal studies of different aspects of language reception and expression in children are used as a basis for comparison in the evaluation of the performance of the language disordered child. The measures of verbal output, language structure and vocabulary are reviewed.

The linguistic approach was introduced in part three. The linguistic approach is the application of the principles of linguistic theory and methods of linguistic analysis to the study of language development. Although the linguistic approach is not new, it has only recently been utilized by

researchers in the field of speech pathology. Transformational and descriptive grammar were reviewed in this section.

Section four was devoted to the behavior approach. The behaviorists view language and communication problems as determined by antecedent events and consequences which can be objectively described, classified, and in many instances, manipulated. This approach considers the language deficit the problem itself, rather than a symptom of some underlying difficulty. The Parsons Language Sample was included as an example under this section.

The final section was concerned with the eclectic approach. It is recognized that other systematic approaches to the appraisal of language development have been used which adhere to no one rationale, but draw upon two or more of the approaches previously described.

This paper indicated that the major approaches to the study and appraisal of language each possess some shortcomings. Intercorrelations among the various measures would be useful. Only a beginning has been made, however, toward determining the relative importance of the various measures.

References

- Ammons, R. B., and Ammons, H. S. The Full-Range Picture Vocabulary Test. Missoula, Montana: Psychological Test Specialists, 1948.
- Bangs, T. Evaluating children with language delay. JSHD, 1961, 26:6-18.
- Barker, Kounin, Wright. Child Behavior and Development. New York: McGraw-Hill, 1943, Chapter 7.
- Bateman, Barbara. The application of language and communication models in programs for the trainable retarded. In Special Education: Strategies for Educational Progress, Selected Convention Papers. Washington: Council for Exceptional Children, 1966, 45-49.
- Braine, M. D. S. The ontogeny of English phrase structure: the first phase. Language, 39, 1-13 (1963).
- Brown, R., and Bellugi, U. Three processes in the child's acquisition of syntax. Harvard Educational Review, 34, 133-151 (1964).
- Brown, R., and Fraser, C. The acquisition of syntax. Child Development Monographs, 29, 43-79 (1964).
- Carroll, J. Language and communication. Language and Thought. New Jersey: Prentice-Hall, Inc., 1964, 1-7.
- Carrow, Sister Mary Arthur. The development of auditory comprehension of language structure in children. JSHD, 1968, 33:99-111.
- Chomsky, N. Syntactic structures. The Hague. Mouton and Co., 1957.

- Chomsky, N. The current scene in linguistics: present directions. College English, 27, 587-595, 1966.
- Darley, Frederic. Diagnosis and Appraisal of Communication Disorders. New Jersey: Prentice-Hall, Inc., 1964.
- Darley, F. L., and Moll, K. L. Reliability of language measures and size of language sample. JSHD, 1960, 3:166-173.
- Darley, F. L., and Winitz, H. Age of first word: review of research. JSHD, 1961, 26:272-290.
- Davis, Edith A. Mean sentence length compared with long and short sentences as a reliable measure of language development. Child Development, 8, 64-79 (1937).
- Davis, Edith A. The development of linguistic skill in twins, singletons with siblings, and only children from age five to ten years. Child Welfare Monographs, No. 14, Minneapolis: University of Minnesota Press, 1937.
- Doll, E. A. The Vineland Social Maturity Scale. Philadelphia: Educational Test Bureau, 1946.
- Dunn, M. Peabody Picture Vocabulary Test. Minnesota: American Guidance Service, 1965.
- Engler, L. F., and Hannah, Elaine P. A structure analysis of speech samples for the clinician. Unpublished manuscript, Memorial Library, Mankato State College (1967).
- Goodenough, F. L. Measurement of Intelligence by Drawings. New York: World Book, 1926.
- Gansil, I. Vocabulary: it's measurement and growth. Archives of Psychology, 1939, New York, No. 236.

- Gesell, A. and others. The First Five Years of Life. New York: Harper, 1940.
- Hahn, Elise. Analysis of the content and form of the speech of first grade children. Quarterly Journal of Speech, 1948, 34:361-366.
- Horner, R. D. A factor analysis comparison of the ITPA and PLS with mentally retarded children. Exceptional Children, November 1967, 3:183-189.
- Johnson, W., Darley, F., and Spriestersbach, D. C. Appraisal of language development and language disorders. Diagnostic Methods in Speech Pathology. New York: Harper and Row, 1963, 160-200.
- Kirk, S., and McCarthy, J. Illinois Test of Psycholinguistic Abilities. Illinois: Institute for Research on Exceptional Children, University of Illinois, 1961.
- Leberfeld, D. T., and Nertz, N. A home training program in language and speech for mentally retarded children. American Journal of Mental Deficiency, 1955, 49:413.
- Lee, Laura L. Developmental sentence types: a method for comparing normal and deviant syntactic development. JSHR, 1966, 4:311-330.
- Lerea, L. Assess language development. JSHR, 1958, 1:75-85.
- McCarthy, Dorothea. Language development in children. In Leonard Carmichael's Manual of Child Psychology. New York: Wiley, 1954, Chapter nine.

- McCarthy, Dorothea. The language development of the pre-school child. Child Welfare Monographs. Minneapolis: University of Minnesota Press, 1930.
- McNeill, David. Developmental Psycholinguistic. In E. Smith and G. Miller, The Genesis of Language, Cambridge, M. I. T. Press (1966).
- Mecham, M. J. Verbal Language Development Scale. Minneapolis: American Guidance Service, 1959.
- Menyuk, P. Comparison of grammar of children with functionally deviant and normal speech. JSHR, 1964, 7:109-121.
- Miller, G. A. Language and Communication. New York: McGraw-Hill, 1951, 298.
- Minifie, F. D., Darley, F. L., and Sherman, D. Temporal reliability of seven language measures. JSHR, 1963, 6: 139-148.
- Mykelbust, H. R. Auditory Disorders in Children. New York: Grune and Stratton, Inc., 1954, 276-289.
- Newland, T. E. Language development of the mentally retarded child. Monograph of Soc. Res. Child, 1960, 25:71-87.
- Nice, Margaret M. Length of sentences as a criterion of a child's progress in speech. Journal of Educational Psychology, 1925, 16:370-379.
- Osgood, C. E. Motivational Dynamics of Language Behavior. Nebraska: University of Nebraska Press, 1957, 348-424.
- Piaget, Jean. The Language and Thought of the Child. New York: Harcourt-Brace, 1926.

- Renfrew, Catherine. Areas of language development. Speech Pathology, Diagnosis: Theory and Practice. London: E. & S. Livingstone, LTD, 1966, 8-11.
- Shriner, H., and Sherman, Dorothy. An equation for assessing language development. JSHR, 1967, 1:41-56.
- Shriner, H. A review of mean length of response as a measure of expressive language development in children. JSHD, 1969, 1:61-66.
- Skinner, B. F. Verbal Behavior. New York: Appleton-Century-Crofts, 1957.
- Sloane, H. N., and MacAulay, B. D. Operant Procedures in Remedial Speech and Language Training. Boston: Houghton Mifflin Co., 1968.
- Smith, Madorah E. An investigation of the development of the sentence and the extent of vocabulary in young children. University of Iowa Studies in Child Welfare, 1926, 3:5.
- Spradlin, J. E. Assessment of speech and language of retarded children; The Parsons language sample. JSHD Monograph Supplement, 10, 1963, 8-87.
- Spradlin, J. E. Language and communication of mental defectives. In N. R. Ellis (editor) Handbook of Mental Deficiency. New York: McGraw-Hill, 1963, 512-555.
- Templin, Mildred C. Certain language skills in children: Their development and interrelationships. Child Welfare Monographs, No. 26. Minneapolis: University of Minnesota Press, 1957.

- Terman, L. M., and Merrill, M. A. Measuring Intelligence.
New York: Houghton-Mifflin, 1937.
- Westlake, H. A system for developing speech with cerebral palsied children. The Crippled Child, 1951, 29:10-11.
- Webster, Martha J., and Shelton, R. Estimation of MLR in children of normal and below average intellectual capacity. JSHR, 1964, 1:101-102.
- Williams, H. M. An analytical study of language achievement in pre-school children. University of Iowa Studies in Child Welfare, 1937, 13:9-8.
- Wolski, W. Language development of normal children, four, five, and six years of age as measured by the Michigan Picture Language Inventory. Doctoral Dissertation, University of Michigan, (1962).
- Wood, Nancy E. Evaluation. Delayed Speech and Language Development. New Jersey: Prentice-Hall, Inc., 1964, 84-88.

A CRITICAL EXAMINATION OF THE APPROACHES TO THE
APPRAISAL OF ORAL LANGUAGE DEVELOPMENT

by

SEARA MCINTOSH WEIR

B. S., University of Kansas, 1962

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARTS

Department of Speech

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1969

It was the purpose of this paper to critically examine contemporary writings on oral language, as reflected in the literature, in an attempt to gain insight as to how the approaches to the study and appraisal of oral language development relate to one another and to note their respective merits and shortcomings as reported by others.

The review was divided into five sections, each describing a different approach to the study and appraisal of oral language development.

The first section described the theoretical model approach which Carrow (1968) says is, "concerned with the formulation of theoretical process-descriptions (models) of language in terms of neuropsychological systems of learning." Under this section, the Illinois Test of Psycholinguistic Abilities was reviewed as an example.

In the second section, the empirical or word centered approach was presented. Empirical approaches utilize normative data obtained through cross-sectional and longitudinal studies of different aspects of language reception and expression in children. The measures of verbal output, language structure and vocabulary were reviewed.

The linguistic approach was introduced in part three. The linguistic approach is the application of the principles of linguistic theory and methods of linguistic analysis to the study of language development.

Section four is devoted to the behavior approach. The

behaviorists view language and communication problems as determined by antecedent events and consequences which can be objectively described, classified, and in many instances, manipulated. They believe that language behavior is learned and as such is subject to the same principles as other behavior. The Parson's Language Sample by Spradlin (1965) was included under this section as an example.

The final section was concerned with the eclectic approach. This is a combination of two or more of the approaches described above.

This paper indicated that the major approaches to the study and appraisal of language each possess some shortcomings. It pointed out that it would seem advisable to draw upon two or more of these approaches if the study of children's language is to be as valid as possible. Thus, in view of the present status of our knowledge of children's language, its acquisition, and its disorders, the eclectic approach appeared to be the most useful.