AN INVESTIGATION OF THE READING STRATEGIES OF GRADE ONE CHILDREN

by

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ABSTRACT

This study was conducted during February and March, 1975 with six Grade One children at Bayview Elementary School, Cobble Hill, British Columbia. Through miscue analysis, the oral reading of three ineffective readers was compared with that of three effective readers, in order to identify specific functions which the ineffective readers were not performing adequately. The reasons for the deficiency of these functions were investigated and described in terms of psycholinguistic reading theory. Instructional techniques designed to develop these deficient functions were outlined.

Selected by their classroom teacher for this study, Group A consisted of three boys designated as ineffective readers. Group B consisted of two boys and a girl designated as effective readers. The subjects were six years old, with the exception of one boy in Group B who was five years, eleven months old. They were Caucasian except for one boy in Group A who was a Native Indian.

Ten perceptual and language tests, plus a detailed examination of oral language, preceded the miscue analysis to screen out any subjects with disabilities severe enough to affect the analysis, and to provide data with which to investigage relationships between perceptual, language and reading abilities. The relationship of socio-economic status to language ability and reading achievement was examined.

A modified version of the Burke and Goodman Reading Miscue

Inventory (1972) was used for the miscue analysis of the oral reading of 24 reading inventory selections. Miscues were placed into categories to produce data which, through interpretation, revealed clear-cut differences between effective and ineffective reading approaches, specific areas in which the ineffective readers were not functioning adequately, and reasons for these malfunctions.

Comparisons of the perceptual, language and miscue data showed that, for the six subjects in this study, visual and auditory perceptual abilities were not highly related to reading achievement, with the exception of listening comprehension, which is a language skill as well as an auditory perception skill. Language ability was most highly related to reading achievement. Socio-economic status was found to be related to both language development and reading achievement.

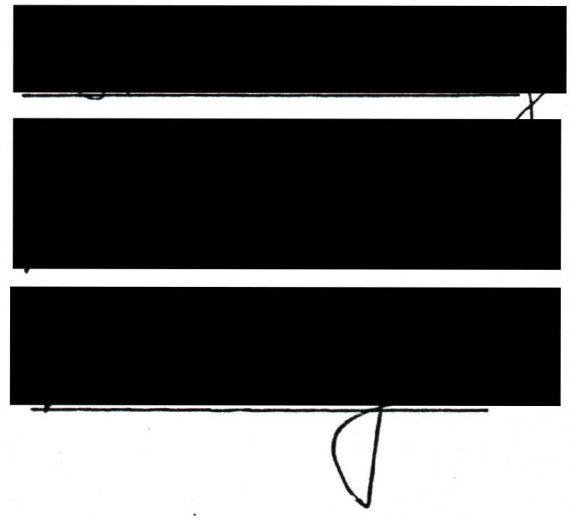
Teaching strategies were outlined for each subject. They were designed to correct specific malfunctioning areas and also to enhance strengths which were revealed by the miscue analysis.

Implications for teaching which emerged from this study were that diagnosis, grouping and evaluation could be done more efficiently through miscue analysis than by present testing methods, that teaching strategies based on miscue analysis insights and on psycholinguistic reading theory would be more successful than current teaching methods.

Suggestions were made for further research into Native

Indian usage of English, a proposed simplified version of miscue analysis, and continued miscue analysis studies of the six subjects in this present study.

Examiners:



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AN INVESTIGATION OF THE READING STRATEGIES OF GRADE ONE CHILDREN

CHAPTER I

Introduction

The purpose of this study was to compare the oral reading of three ineffective readers with that of three effective readers, through miscue analysis, in order to reveal and examine differences between their approaches, to identify specific areas in which the ineffective readers were not functioning adequately, to determine the reasons for these malfunctioning areas, and to outline teaching strategies designed to develop adequate function.

A modified form of the Burke and Goodman Reading Miscue Inventory (1972) was used to analyse the oral reading by the six subjects of 24 reading inventory selections. The resultant miscues, categorized, produced patterns which revealed demonstrable differences between effective and ineffective reading approaches. Psycholinguistic reading theory was used to interpret these differences, to gain insight into their sources, and to outline teaching techniques specifically planned to correct ineffective reading strategies.

Design

Sample: Six Grade I children at Bayview Elementary School, Cobble Hill, B.C. Group A consisted of three subjects selected by their classroom teacher as having reading

problems. Group B consisted of three subjects who were making average or better progress in classroom reading.

Table 1

Sex, Race and Age (in Years and Months) and Socio-Economic Status as determined by the Minnesota Scale of Paternal Occupations for the six subjects.

	Group A			Group B		
	S1	S2	S3	S4	S5	S6
Sex	Male	Male	Male	Male	Male	Female
Age	6.4	6.6	6.2	5.11	6.9	6.1
Race	Caucasian	Caucasian	Native Indian	Caucasian	Caucasian	Caucasian
SES	6	3	7	3	3	2

Note: S = subject

The Socio-Economic Levels on this table were obtained through the use of the Minnesota Scale for Paternal Occupations (n.d.) as follows:-

1. Professional
2. Semi-Professional
3. Clerical, Skilled Trades, Retail Business
4. Farming
5. Semi-skilled Occupations
6. Slightly Skilled Trades
7. Day Labour

Perceptual and Language Tests

The subjects were given the following tests in order to examine factors which could affect the interpretation of the data resulting from the analysis of reading miscues. Tests IA, B and C, and IIID were constructed by the examiner and are referred to as "informal", as compared to the other tests in this group, which are formal, standardized tests. Copies of the tests are available in Appendix C.

I. Visual Perception:

A. Letter-Discrimination Test: An informal test to examine ability to match identical graphemes and to distinguish between all graphemes.

B. Word-Discrimination Test: An informal test to examine ability to match word pairs and to distinguish similar but non-identical words from one another.

C. Memory Test: An informal test to examine non-sequential and sequential forms of visual image retention.

II. Auditory Perception:

A. Letter-Sound and Word Discrimination Test: The Wepman Test of Auditory Discrimination (1968) to measure ability to distinguish between identical and similar phonemes and words.

B. Memory Test: An Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk, McCarthy and Kirk, 1968) subtest and an informal word test to examine random and sequential forms of auditory image retention.

C. Listening Test: The Spache Diagnostic Reading Scales (1963) given orally to examine ability to take in, understand and retain information.

III. Language Development:

A. Vocabulary Test: The Peabody Picture Vocabulary Test (Dunn, 1959) to examine understanding of words and concepts. This test provides an estimate of mental age and intelligence quotient.

B. Articulation Test: The Webster Speech Test (n.d.) to examine ability to pronounce individual letters and letter combinations in words.

C. Conceptual Development Test: The Botel Opposites Test (1970) to examine ability to categorize, to relate concepts, and to understand abstract concepts. This test is often used to predict potential in language and reading skills.

D. Letter-Sound Correspondences Test: An informal test to examine ability to relate the sounds of letters to their symbols.

E. Oral Language Ability Test: An analysis of language to examine fluency and degree of language maturity (Loban, 1963).

Sample of Oral Reading

The sample of oral reading analysed in this study was obtained from the six subjects over a two month period, in February and March, 1975. Each subject read several selec-

tions at each session, stopping when he or she became tired. The subjects read 24 reading inventory selections of varying lengths, which came to a total of 1,284 words. The inventory selections ranged in grade level of difficulty from Pre-Primer to Grade Two (2.6, i.e. the sixth month of Grade Two). Copies of these inventories are available in Appendix A. The oral reading was recorded on audio tape cassettes as the miscues were being recorded on copies of the reading inventories. Transcriptions of these recordings are available in Appendix D to this study, and the cassettes are available from the author as Appendix E.

Miscue Classification

Miscues were classified in the following categories which are a modification of those in the Reading Miscue Inventory (Burke and Goodman, 1972). Miscues which were self-corrected by the reader were also classified into these categories.

1. Same first letter as expected response.
2. Graphically similar to expected response, i.e. containing similar groups of letters.
3. Same grammatical function as expected response.
4. Same meaning as expected response.
5. Omission.
6. Insertion.

Note: A miscue may fall into several categories, i.e. may have the same first letter and also some groups of similar

letters, as well as having the same grammatical function and same meaning as the expected response.

Use of Data

Perceptual and Language Test Data: These were interpreted for each subject, compared between subjects, compared between groups, and compared with miscue analysis and socio-economic status data.

Miscue Analysis Data: These were interpreted for each subject, compared between subjects and groups, and compared with perceptual, language and socio-economic status data.

Findings

Areas covered.

1. Miscue Analysis: The differences which became apparent between the reading strategies of the two Groups.
2. Perceptual Tests: The relationships between perceptual abilities and reading achievement.
3. Language Tests: The relationships between language ability and reading achievement.
4. Socio-Economic Status: The relationships between socio-economic status, language ability and reading achievement.

Conclusions

Areas covered.

1. Miscue Analysis: The advantages of miscue analysis.
2. Perceptual Tests: The influence of perceptual abilities on reading achievement.

3. Language Tests: The influence of language abilities on reading achievement.
4. Socio-economic Status: The influences of socio-economic status and cultural differences on reading achievement.

Assumptions

1. That comprehension is the most important component and the main goal of reading.
2. That no miscues are accidental, and that all miscues are caused by the interaction between reading material and the reader.
3. That the reason for the occurrance of most miscues can be found.

Limitations

1. This study is descriptive in nature. Conclusions will be based upon opinion supported by limited evidence. Observed oral reading data will be recorded, organized and presented systematically through miscue analysis. They will then be interpreted in order to discover their meaning in relation to reading strategies.

Organization of the Report

Chapter II - Review of the Literature

Chapter III - Miscue Analysis
Perceptual and Language Test Procedures and Results
Perceptual and Language Test Results compared to Miscue Data

Definitions

Cloze Procedure: The omission of words in reading material, which requires a reader to supply the missing word. This technique is useful in both teaching and testing.

Code-breaking: Breaking a written message into its component parts or symbols, to determine its meaning.

Cognitive Structure: An organization of mental concepts.

Comprehension: The understanding of a message conveyed by written material.

Concept: The idea of a class of objects.

Correction: An attempt by a subject to change his original response. It may not result in the expected response.

Cue: An indication of an action to take in making a reading response.

Decode: To break a coded message into its component parts in order to determine its meaning.

Deep Structure: The meaning which underlies graphic and syntactic structure in written language.

Encode: To translate meaning from written language into a verbal or written code.

Experiential Background: The cumulative experiences an individual has had which provide concepts for his cognitive structure.

Expanded Code: The language used by individuals of upper and middle socio-economic status. It contains a larger, more varied vocabulary, and greater flexibility and range of expression than language of individuals in

lower socio-economic strata.

Fixate: A reader's eyes stop their movement across a page of print and fix upon one spot to allow the reader to focus on it.

Focus: The lens of the reader's eye adjusts to gain a clear visual image.

Grapheme: The printed or written symbol of a phoneme.

Graphic: That which is printed.

Idiolect: A language pattern unique to one individual.

Intonation: The rhythm and tone, pitch, stress and juncture of language.

Mediated Word Identification: This occurs when some additional non-visual processes of word synthesis intervene between print and meaning.

Miscue: A response in reading which differs from the expected response.

Perseverant Sound Chaining: The mental retention of a sound from a previous word and its incorrect placement into a subsequent word.

Phoneme: The smallest sound unit in speech.

Phonics: The system of phoneme-grapheme correspondence.

Phrase: Any two or more words of printed material.

Psycholinguistics: The scientific discipline which applies knowledge and basic principles from both psychology and linguistics.

Reading Strategy: One aspect of the total reading process, which is composed of many simultaneous strategies.

Recode: In reading, recoding refers to breaking the printed code into its component parts and transferring it into a language code without understanding the message.

Redundancy: This exists when the same information is available from more than one source in a written message.

Regression: A reader's eyes travel from right to left back along a line of print to re-read a part of the text.

Restricted Code: The language used by individuals of lower and foreign socio-economic strata. It contains a smaller, narrower vocabulary and is less flexible, expressive and precise than that of the middle and upper socio-economic strata.

Semantic: That which concerns meaning.

Sequential Constraints: The restrictions placed upon meaning by the previous context.

Sight Word Recognition: The identification of words which a reader had learned to respond to automatically, without having to resort to phonic techniques.

Signal: In reading, this is a symbol which directs a reader to respond in a certain way.

Subordinate Noun: A noun which is in a subordinate position relative to a superordinate class name noun. It is mentally pricturable, has recognizable visual contour and size, and is also termed "concrete". For example: "house".

Substitution: A word supplied by a reader in place of a word misread by him in the text.

Superordinate Noun: A noun which is in a superordinate position relative to a subordinate, concrete noun. It is not mentally picturable, is more abstract, and denotes a class name or general concept. For example: "dwelling".

Surface Structure: Graphic and syntactic features of written language which can be processed without reaching "deep structure", which is the underlying meaning.

Syntax: The word order and relationships between words in oral and written language.

Whole-word Method of Word Recognition: The identification of words by general configuration rather than by analysis of component letters through phonics.

Summary of Chapter One

The purpose of this study was to analyse, describe and compare the oral reading strategies of three subjects who were effective readers with those of three subjects who were ineffective readers, in order to identify specific areas in which the ineffective readers were not functioning adequately, and to suggest teaching techniques designed to help overcome weaknesses and utilize strengths.

Three subjects, designated by their classroom teacher as being ineffective readers, formed Group A. Group B consisted of three subjects designated as being proficient readers. Prior to the miscue analysis, ten perceptual and language tests were administered, and a detailed examination of oral language was conducted, to screen out any subjects with impairments severe enough to affect the analysis.

The sample of oral reading for miscue analysis was obtained over a two month period during which the subjects read 24 reading inventory selections. This reading was recorded in note form and on audio-tapes. A modified form of the Reading Miscue Inventory (Burke and Goodman, 1972) was used to obtain miscue data which were examined, compared and interpreted to discover differences between the reading strategies of the subjects in the two groups. The miscue data were then compared with the perceptual and language test data to examine relationships between perception, language and reading achievement. Miscue, language and socio-economic data were then compared to examine the role of socio-economic

status in language and reading achievement.

The miscue analysis, perceptual and language data for each subject were examined separately and interpreted. Teaching strategies based on the interpretations were suggested.

Findings, conclusions, implications for teaching and suggestions for further research emerged from the comparisons and interpretations of data.

CHAPTER II

THE REVIEW OF THE LITERATURE

The Reading Process

The model of reading presented in this study is based on the author's observation of oral reading in the schools and upon the application of psycholinguistic reading theories to this observation.

When learning to read, a child must learn to manipulate all the skills he learned when mastering oral language in relation to a new set of aural and visual correspondences, the sounds and letters of printed language. He must master this as a new and separate system of communication. These processes are much more complex than they seem to be. Adults who read without conscious effort often do not realize what is involved when they present reading tasks to beginners.

Responding to cues in printed language involves far more than the simple decoding of graphic symbols or the recognition of previously learned whole words. The reader has to be able to combine decoding and word recognition with an understanding of the syntactic relationships between words and with the meaning he derives from them. He also has to consider and include meaning he has obtained from previous parts of the material, and internalized meaning he has obtained from personal experience.

A flow chart of the reading process is shown on page 11A, and is then explained in detail on pages 12 - 17.

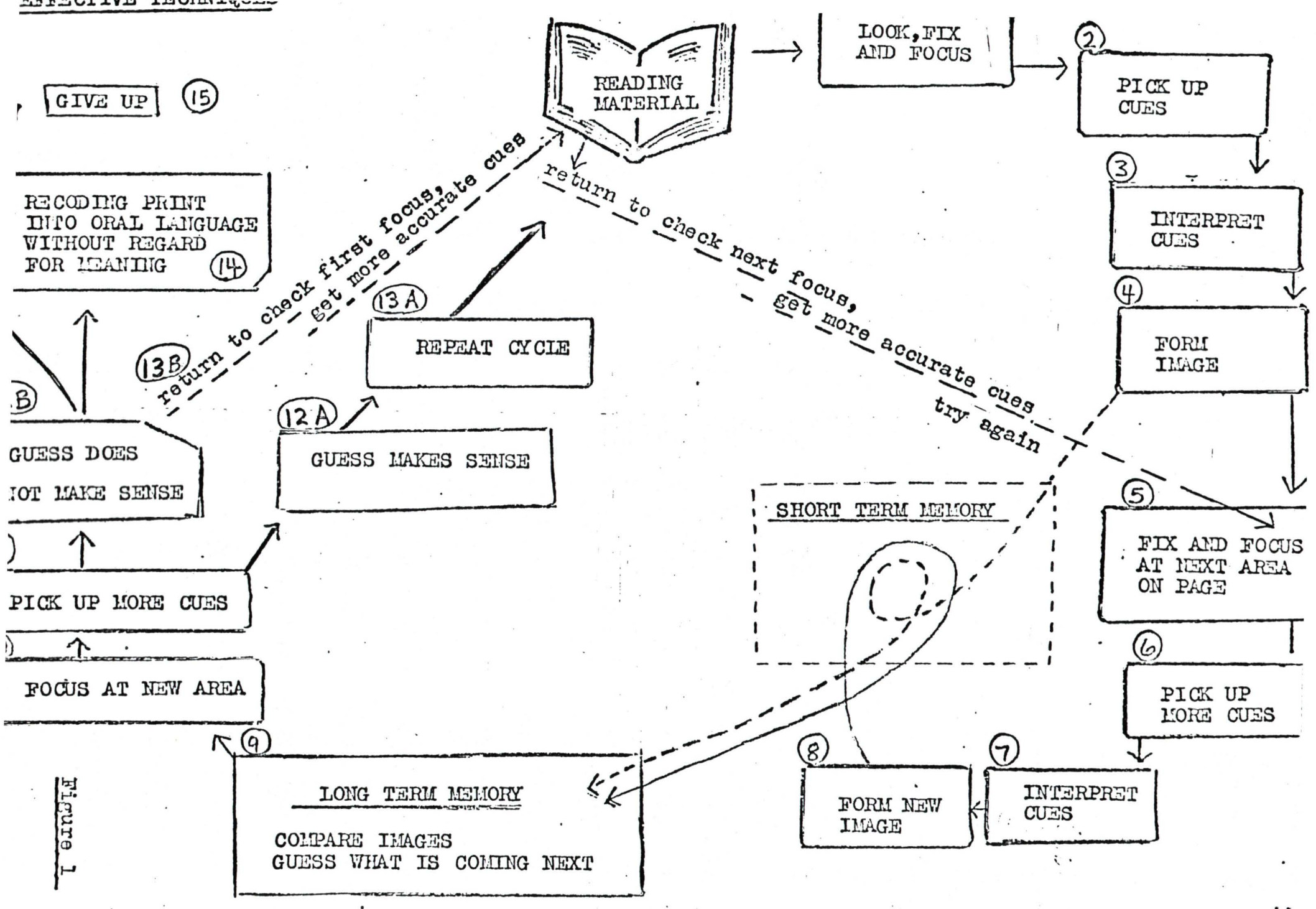

READING MATERIAL
LOOK, FIX AND FOCUS
2
PICK UP CUES
3
INTERPRET CUES
4
FORM IMAGE
5
FIX AND FOCUS AT NEXT AREA ON PAGE
6
PICK UP MORE CUES
7
INTERPRET CUES
8
FORM NEW IMAGE
SHORT TERM MEMORY
9
LONG TERM MEMORY
COMPARE IMAGES
GUESS WHAT IS COMING NEXT
FOCUS AT NEW AREA
PICK UP MORE CUES
GUESS DOES NOT MAKE SENSE
13B
return to check first focus, get more accurate cues
GUESS MAKES SENSE
12A
REPEAT CYCLE
13A
return to check next focus, get more accurate cues
try again
RECODING PRINT INTO ORAL LANGUAGE WITHOUT REGARD FOR MEANING
14
GIVE UP
15

Figure 1

Steps in Obtaining Meaning

The circled numbers refer to numbers on the flow chart.

When a person reads a sentence, he does the following things:

1. He looks at the sentence, starting at the left hand side and moving his eyes to the right. (1)
2. His eyes fix and focus (1) on one small area from which he picks up cues about possible meaning. (2)

Smith (1971) explained that a skilled reader can pick up more information with every eye fixation than a beginning reader. He can identify a greater number of letters or words at a time, with the result that fixations are shorter and fewer. Smith noted that a child in first or second grade might make around 200 fixations in order to read 100 words, whereas a college student would probably read 100 words with only 90 fixations.

A skilled reader has a rich store of cognitive and language information which enables him to obtain meaning with a minimum of visual cues. This also reduces the number of eye fixations he must make. A beginning reader must pick up more visual information because he depends on it to a greater extent. As he develops skill in using syntactic and context cues, and a more extensive cognitive framework, he will rely less on visual information and thus fixate more quickly and less often.

3. The reader interprets these cues (3) and recodes them into speech, either orally or internally, using code-

breaking and/or whole-word recognition techniques.

4. He now forms an image in his mind of the person, object, action or concept suggested by the cues (4), and stores this in his short-term memory (Smith, 1971) as he moves his eyes ahead (5) and absorbs a few more cues. (6)
5. He interprets these cues (7), forms another idea in his mind (8), and compares it to the first one, to see if the two make sense together. In order to compare them, he has to refer to related ideas in his long-term memory (9), which is the cognitive framework he has built up through experience and is composed of concepts related to each other in various ways.

A beginning reader has to learn to process information in units larger than single letters or single words. Smith (1971) described the limitations of short-term memory, which can hold only four or five items, and those for only a few seconds each. By processing information in larger units which have meaning, a child can help himself overcome these limitations because each of these units will now contain condensed information which he can relate more comprehensively with his store of accumulated meaning, and transfer more meaningfully into his long-term memory. He can learn to process these larger units by using more syntactic and context cues, and fewer visual cues.

According to the present model, the contents of short-term memory are either lost when they are superseded by

new impressions, or are transferred to the long-term memory. Smith (1971) explained that it is estimated that because the long-term memory accepts new items at a rate of only one every five seconds, much information is lost, as it is ejected from the short-term memory at a greater rate, and there is no holding or retrieval system in between. A skilled reader learns to select and store, and which ones to discard. Here again, his store of accumulated meanings and his internal cognitive structure help him to choose correctly.

6. As the reader progresses through a sentence, paragraph or story, he tries to synthesize all these images and relationships into meaning which will enable him to predict what might be coming next. He reads ahead (10) to see if the next group of printed symbols, whole words and relationships between (11) them verify his guess. If they do (12A), he reads ahead and continues (13A) the cycle of absorbing, comparing and synthesizing as he progresses.

Smith (1974) asserts that it is not possible to read meaningfully without prediction, and that the opportunity to develop and use predicting skills must be a part of learning to read. However, he states that it is not necessary for prediction to be taught, because a child who can understand language well enough to comprehend what is read aloud to him has enough competence and experience to develop his own ability to predict.

Smith defined prediction as the "prior elimination of unlikely alternatives and the reduction of uncertainty". He stated that the main reasons for prediction are that words have too many alternative meanings, the spelling of words does not indicate pronounciation, and that there is a limit to the amount of visual information the brain can process at one time. A reader can eliminate some or all of the alternative meanings of a visual cue by choosing one which makes sense in context. He stressed that there is no one to one correspondence between the surface and deep levels of written language, and that if there were, the alternatives would not be available.

He explained that meaning is not something that suddenly appears at the end of a sentence or a paragraph, but is available at every step in the reading process to reduce the number of alternatives possible.

When images do not make sense. If a reader's guess is not verified, and the images he is manipulating do not make sense (12B), he must return to the print to try again. His eyes regress to the point where meaning was lost (13B), and he looks at the print more closely to see if he made a mistake in recognizing a word.

He tries to pick up more accurate cues, and then repeats the comparing of images to see if they now make sense, makes a new prediction if they do, and reads ahead to verify it.

Frustration and abandoned meaning. If a child cannot make sense out of the images he forms from cues, even after regressing several times to try again, he may abandon the attempt to obtain meaning, and read only the surface structure of the text (14), or give up in frustration. (15) In this case he will use sight-word or decoding word recognition techniques without any regard for their meanings or relationships.

When images do make sense. The reader files these images in his short-term memory as he continues to predict meaning, reads ahead to verify his predictions and to gather more cues and images. He keeps comparing these images and predictions, deciding about meaning, rejecting unlikely alternatives, and adding to the store of meaningful relationships in his short-term memory. When four or five items are stored in this temporary memory bank, they must be unloaded to make room for more, and thus are either transferred to long-term memory or lost. Those items which are transferred to the long-term memory become attached to the cognitive framework in certain relationships to other concepts which form this multidimensional structure.

Smith (1971) explains that the rejection of unlikely alternatives is a characteristic of the way the human brain works, and that if a child is to be able to use this ability, he must have reading material which is meaningful enough to allow for prediction. He warns that anxiety over learning

to read can inhibit a child's ability to predict, with the danger that poor performance will increase the anxiety and so start a self perpetuating cycle of reading disability.

Oral Reading Observed

Through careful observation of a child's oral reading it is sometimes possible to follow his physical and mental progress through the reading cycles (as shown on the flow chart), and to find out if he is processing cues effectively.

Indications of Ineffective Strategies

When a child reads without intonation, pronouncing every word with the same degree of stress, and ignoring juncture, this indicates that he is not getting images from the cues which make sense to him, is not making any predictions about cues to come, and is not trying to process the language in the printed material on anything but a surface level. He may give a perfectly accurate surface reproduction, but be unable to re-tell the story or answer questions about it, as he has never descended to the deep structure.

Sight word and decoding word recognition techniques are necessary primary strategies which enable a child to begin to learn to read, but he must learn to use them and then quickly proceed beyond them, to use all the other kinds of cues in the text which are available to him.

Goodman (Goodman and Smith, 1970) stated that for correct intonation a reader has to predict a structure as he begins to read. If he changes his intonation as he

proceeds through a sentence, this indicates that he has realized he must change his prediction. Intonation is thus a good indicator of meaning realization.

Smith (1971) remarked that in oral reading, word identification must be mediated through meaning identification, because that is the only way in which information about correct intonation can be obtained, as it is not evident in the visual surface structure of a printed message.

When a child misinterprets the meaning of a sentence or paragraph, as indicated by inaccurate story re-telling and question answering, he has been forming inaccurate images which cause him to make inaccurate predictions about the forthcoming content. By listening carefully, it may be possible for a teacher to estimate whether the child is relying too heavily on one kind of cue, perhaps graphic, or syntactic, or contextual. This requires a great deal of her time and much insight, however, and the conclusions can not be anything more than tentative conjectures.

There is a process by which accurate information about cue processing can be obtained in a more systematic way, with more definite conclusions. This process is called Miscue Analysis, and was developed by Kenneth Goodman in 1962 and 1963 as an extension of his psycholinguistic theories of reading.

Miscue Analysis

Goodman's method of analysing a child's oral reading was

to give him material he had never read before that was a little more difficult than the material he had been used to. As he read, Goodman noted the miscues on a copy of the material, and also recorded the session on audio-tape, in order to do a more thorough examination of the reading later, and to be able to re-play doubtful areas over and over until the pattern of miscues became clear.

As he compared these patterns in many ways, both quantitatively and qualitatively, a picture of the reading process in depth emerged, which provided specific insights not only into how it was functioning, but also into how, where and why it was malfunctioning.

As Goodman listened to children read, he noticed that reading was not an accurate word-for-word rendition of the printed material, as former theorists had assumed it to be. He believed that all the miscues children made were caused, that nothing that occurred was accidental, and all were the result of the interaction between the reader and the material.

Goodman defined a miscue as any unexpected response to reading material. He stressed that miscues are evidence of both efficient and inefficient reading strategies, not always errors to be corrected or eradicated. The important aspect of miscue analysis is not the quantity of miscues a reader makes, but rather what their effect is on reading.

As first Goodman looked for easily identified cause and effect relationships. For each miscue he looked for some one cue, but many miscues appeared to have multiple causes,

which indicated that something very complex was being revealed. He then developed an analytic taxonomy which considers the relationship between expected and observed responses from all possible angles. Each miscue was considered in relationship to all relevant variables, and no attempt was made to establish any single cause and effect relationships. He had to examine the whole process and take into account all the various interacting kinds of information used by readers.

Goodman discovered that miscues fell into patterns, and that these patterns suggested ways in which the "psycholinguistic guessing game" of reading was carried out - as a selective, tentative, anticipatory process. He noticed that a large number of miscues seemed to be related to a reader's own grammatical structure in language. As a reader improved, fewer of his miscues affected the meaning. The miscues of more proficient readers were more complex, with more integration of meaning, syntax and sound with the printed information and the reader's own experience. The poor readers' miscues were less complex, more associated with graphic signals and habitual word associations. The better readers had "better" miscues, i.e. more productive or demonstrative of complex processing. The poor readers handled reading skills one at a time, while the good readers integrated them.

The Interpretation of Patterns

Goodman divided cue systems into four categories: those which occurred inside words, those outside words in the general

flow of language, those external to the reader, and those within the reader. When he observed reading in the light of this kind of analysis, he was not surprised to see that many children could read words in context which they could not read on isolated word lists. He realized that on the lists they had only those cues which were inside words to work with, when all the syntactic and semantic cues of the context were missing.

The most important single indication of reading proficiency in miscue analysis is the degree to which a reader substitutes words of similar meaning to the original. A reader's preoccupation with meaning will be observable in his miscues, because he will still tend to produce language which makes sense. Even when he produces non-words he will still tend to retain the grammatical endings and intonation of the real words which they replace. He tends to retain the grammatical structure, even if the meaning eludes him.

Effective readers tend to correct miscues which result in loss of meaning. They do this selectively, and are often not aware that they have made a miscue if the meaning is not changed.

When proficient readers experience difficulty, they first ask themselves what would make sense, then what would fit the grammatical structure, and only after that try to match the graphic cues to fit both meaning and syntax. They keep the value of graphic cues in the correct perspective and do not use them more than necessary.

Readers who are less effective may be too concerned about word-for-word accuracy. This may be evident in close graphic correspondence between the expected response and the observed response even though the meaning is lost, frequent corrections of miscues which do not affect the meaning, or many tries at pronouncing difficult words even if they make very little difference to comprehension.

When the conceptual load in reading material becomes too heavy, many children read only the surface structure without attempting to make sense. This may be reflected by a high percentage of miscues with grammatical acceptability and a low percentage of those with meaning acceptability. If readers are obtaining meaning, both kinds will be relatively high.

Oral reading is seldom free of miscues, and silent reading is never free of them. All effective reading includes miscues, and it is possible that a perfectly accurate oral reproduction of a printed page represents lack of comprehension.

Goodman (1973) warned that miscue analysis is not a method of teaching reading. It is a technique for examining and evaluating the development of the reading process. It can, in the hands of knowledgeable teachers, provide a basis for the development of teaching strategies aimed at the correction of malfunctioning reading processes.

Rationale for using Goodman's Theories in this Study

Although there have been many schools of thought on the subject of reading, and many theorists have advanced complex theories about it, none have been able to explain in a completely satisfactory manner certain phenomena which continue to baffle teachers.

Goodman's psycholinguistic theory seems to explain why a child can say the words on a page of print with perfect accuracy, and yet be unable to comprehend it. It is the only theory which has an explanation for the fact that a reader who understands the meaning of what he reads often makes frequent errors, which he leaves uncorrected.

Theories which emphasize phonics or whole word approaches do not have explanations for the fact that a child may be able to "do" phonics exercises well, and read isolated words on vocabulary lists accurately, but be unable to transfer these skills to the same phonic patterns or to the same words when he meets them in context. Conversely, they do not explain why a child can read certain words in stories, and yet be unable to recognize them in a vocabulary list.

Goodman's theories explain why teachers can drill phonics skills most determinedly, and yet fail to have their pupils reading with comprehension. They describe why one child reads in an expressionless monotone, while another child produces the correct intonation of a sentence.

These are examples of perplexing problems which Goodman's theories can help to explain, and more important, help to over-

come. Through miscue analysis, a teacher can come much closer than ever before to an understanding of the actual reading process of each pupil. It is Goodman's emphasis on comprehension which fills many of the gaps left by other theories, and provides a really functional model of the reading process.

Goodman would not claim that he has found the ultimate answer, or even that the ultimate answer can be found, but his theories enable teachers to head in the right direction. Many established methods of teaching, preparing materials, and evaluating achievement may now be modified. More accurate, productive diagnoses of reading problems will be possible, together with more effective remedial techniques.

This study is based upon Goodman's theories because in the opinion of the author they hold more promise of attaining real insight than do other current reading theories, and also because as more research is done in this area by as many people as possible, the theories will develop even further and continue to come closer to revealing the actual reading process.

Development of Reading Methodology

Emans (1968) described how alphabet-based methods were used to teach reading during the early years of North American education. Names of letters, rather than letter-sound associations, were most often used until Benjamin Franklin and then Noah Webster proposed phonic approaches. These methods of

first teaching the sounds of letters and then blending them to form words remained dominant until the 1840's, when through the influence of Pestalozzi and his European schools, Horace Mann and other American educators became aware of a method in which the general shape of a word was the primary cue for word recognition, and in which first whole words, and then later individual sounds were taught. With the support of Cattel in 1885, this method was widely used, and prevailed until phonics were re-introduced around the end of the 19th century.

Whole-Word Emphasis versus Code-Breaking Emphasis

The relative merits of these two methods has been a subject of argument for many years, and many forms of each were advocated. Some teachers, confused by the controversy, adopted one or the other of these approaches. Others settled for a combination of the two, and this is the background of most reading programs in the schools at the present time.

The continuing argument was summarized in 1967 by Jeanette Chall's book, Learning to read: the Great Debate. After surveying research literature, she concluded that phonic or "code-breaking" approaches were more effective than "meaning-emphasis" methods, as she termed typical basal reader programs.

In order to evaluate the effectiveness of various methods, Chall compared achievement tests which measured the reading and pronounciation of words in isolation, accurate reproduction of graphic input, and rate of oral reading. These are

only components of the total reading process, and when abstracted out of the whole, are not in themselves reading. Chall was therefore measuring the wrong kinds of achievement, and evaluating reading methods by using the wrong kinds of criteria. Although she included comprehension as one of the skills measured, it played only a minor role, instead of the major role it actually plays as both the dominant means and overriding goal of reading. Her criteria were based on the false assumption that the process of reading can be fragmented for either teaching or evaluating.

Behavioural Psychology and Reading Theory

Skinner's analysis of conditioned responses was applied to language theory, and then to reading theory (Skinner, 1957). These theories equated reading skills with responses which had been conditioned by repeated reinforcement until they were "overlearned" so that they became automatic. Much repetition of stimuli, plus constant reinforcement through extrinsic rewards was considered to be instrumental in forming and maintaining the responses.

One development of this approach is the "behaviour modification" method which can be applied to various kinds of learning, including reading. The reading process is broken down into small steps, represented by specific stimuli. The process is highly mechanical, but appears to be effective in the teaching of children who are autistic, retarded, or have learning or socio-cultural disabilities.

The Distar (Direct Instructional System for Teaching) programs (Engelmann, 1973), have incorporated behavioural psychology methods into their approaches to teaching arithmetic, language and reading. They are effective in teaching the mechanical beginnings of reading, but like de-coding approaches, tend to divide the reading process into fragmented skills and thus interfere with its integrated function.

Cognitive Theories of Reading

Stauffer (1970) described how the theories of Piaget and Bruner about language and thought were applied to reading. Cognitive theory seeks to explain the interrelationships between language and thought. Each is dependent upon the other in that thought makes language possible, and language transforms thought by providing categories in which to place thought units or concepts.

The cognitive theorists stated that reading is a process akin to thinking, and that it should be taught as a thinking process. They stressed the importance of allowing children to think their own way to the acquisition of a new ability, because unless learning became internalized through inductive generalization, a child could not integrate it meaningfully with his internal cognitive structure, and could not produce it again spontaneously at appropriate times or in meaningful

contexts.

This approach has been applied effectively to teaching methodology, but many teachers are still unaware of its implications and continue to teach reading through the presentation of pre-formed generalizations, which they expect children to absorb and use.

Linguistic Theory and Reading

One of the first applications of linguistic theory to reading was that of Bloomfield. Wardhaugh (1968) described how he, and later R. Hall, rejected both code-breaking and whole word approaches and concentrated on the regularity of sound-symbol relationships. Bloomfield developed a system of "minimum contrast" in which monosyllabic words differing only in one grapheme and corresponding phoneme were compared and contrasted. The skills developed were later to be transferred to polysyllabic words. Bloomfield removed pictures from reading material so that children were forced to rely on the text for meaning.

Fries also rejected illustrations and extended these theories. He emphasized the teaching of regularities in phoneme-grapheme correspondences in carefully planned sequential order, before introducing any irregularities. He considered that comprehension would automatically follow upon the ability to read surface structure and appeared to view reading as the visual recognition of meanings already known to the reader.

Fries (1966) developed a series of readers, The Merrill Linguistic Reading Series, which teach regular letter-sound relationships and a group of sight words, i.e. words necessary to the content but which do not contain regular relationships and must be learned as whole units, without being separated into letter-sound components. These readers provide many opportunities for the practice of phonic skills in a context of sorts. Books 1 to 3 deal with single consonants and short vowels, Book 4 consists mainly of words which contain initial and final consonant blends, Book 5 is a series of words with "silent e" joined together to make stories, and Book 6 introduces vowel digraphs. Meaning independent of illustrations has been achieved, even in the beginning books. The syntax of natural language has not been achieved, however, which means that although children are helped greatly by the consistent sound-symbol relationships and can obtain some meaning, they are not able to use the syntactic cue system in a natural manner. The logical consistent approach does help children who might be bewildered by the inconsistencies in the usual basal reader approaches, but provision should be made for children on the Merrill program to transfer to reading material which contains more natural syntax as soon as they have become confident enough to make generalizations about irregularities in sound-symbol correspondences.

Smith (1973) stated that there can be a psycholinguistic approach or attitude to the teaching of reading, but that there can never be a specific psycholinguistic method of

teaching reading. He warned that to name a reading program "psycholinguistic" is to use the term falsely.

Smith defined "psycholinguistics" as a synthesis of psychology and linguistics which describes the psychological processes which occur as humans use language. He explained that psycholinguistic theory is causing educators to re-examine former theories about reading, and remarked (p. 180):

> It is becoming clear that reading is not a process of combining individual letters into words, and strings of words into sentences, from which meaning springs automatically. Rather the evidence is that the deep-level process of identifying meaning either precedes or makes unnecessary the process of identifying individual words.

Smith predicts that the application of linguistic theory to the study of reading may result in the modification of many teaching methods and materials, as the understanding of psycholinguistic principles allows educators to see these methods and materials in their true perspective.

Psycholinguistic theories of reading

Psycholinguistic theoreticians apply many different approaches to explanations of the reading process.

Venezky's model of reading. Venezky (Venezky and Calfee, 1970) constructed a reading model which attempted to describe the reading process in terms of the distribution, frequency and patterns of correspondence of phonemes and graphemes.

He described the reading process as the translation of

written symbols into sound, and stated that this is the only language skill unique to reading.

Chomsky and M. Hall (1968) rejected Venezky's theories in favour of an approach which focusses on ways in which meaning is encoded into sound. They see the reader's task as one of getting to meaning through the use of the syntactic and grammatical rules which govern surface structure.

Sub-strata factor theories of reading. Holmes (1970) explained that advocates of this type of theory define reading as an audio-visual-verbal processing skill of symbolic reasoning, in which an intricate psychological system of hierarchical factors operate, directed by the aims of the reader. They describe these factors as being neurological subsystems of groups of brain cells which contain information about memories, shapes, sounds, and meanings of words. Researchers are interested in identifying sub-strata factor changes and orderly patterns of hierarchy alteration which occur in children as they proceed through school, developing and learning new skills. They wish to apply these findings to the broadening of present explanations of ways in which children relate new concepts meaningfully to their existing cognitive framework.

Systems of communication theory and models of reading. Ruddell (Singer and Ruddell, 1970) emphasized that psychological and linguistic theories are more powerful together than each discipline applied separately. He defined reading as

complex psycholinguistic behaviour which consists of decoding written language units, processing resultant language versions through structural and semantic dimensions, and interpreting deep structure relative to the reader's goals. The main goal of this process is communication.

In a communications system model of reading, certain variables are divided into three levels: the surface structure level which involves decoding, the relational level which involves the processing of language relationships between surface and deep levels of the material, and the deep structure level, which involves the interpretation of syntactic and semantic data, the integration of this with the cognitive structure, and its storage in a memory bank of the brain.

Reading competency theories. Carroll (1970) stated that pattern perception, the actual process by which humans recognize words, is a psychological enigma. He denied that the configuration of words can influence this perception, and emphasized that initial and final letters are more critical to word recognition. In rapid reading, letters in the centers of words tend to be overlooked.

In reading competency theory, Carroll explained, the process of learning to read is different to the reading process of the mature reader, because the beginning reader has to acquire eight separate component skills which the mature reader operates simultaneously. These skills are:

1) Ability to speak and understand language being read

2) Ability to dissect spoken words into component sounds
3) Knowledge of grapheme-phoneme correspondences
4) Knowledge of left to right sequence
5) Generalization of spelling regularities
6) Ability to recognize words
7) Ability to relate printed words to spoken words
8) Ability to reason about messages from printed material

The long continued debates over the superiority of whole word or decoding approaches to reading are actually arguments about the correct order for teaching these eight skills.

Frank Smith's psycholinguistic approach. Smith stated (Smith and Goodman, 1971) that the value of psychlinguistics lies in the new understanding it can give both researchers and practitioners in the field of reading. Rather than developing dogma about reading methodology, his goal has been to provide insights into the reading process and how it is learned. He remarked (1971) that as a linguist, he began to study reading as a means of understanding more about language, and ended up by using language as a means to understanding reading. He also applied principles of communications theory, learning theory, and the physiology of the eye and brain to his studies.

Smith stressed that the reading process and reading instruction are independent areas of inquiry, and that although

workers in each area should share information, they should not criticize each others' methods. He intended his investigations to help teachers understand why some methods are more successful than others. A child learning to read, like a child learning to talk, seems to need opportunities to examine a large sample of reading material, in order to form generalizations about its regularities, and to test and modify these through appropriate feedback. Smith stated that these steps cannot be outlined in a formal reading program, but that a child needs access to written language which is interesting and comprehensible, and a teacher who understands language - learning and, most important of all, who appreciates his innate competence as a language - learner.

Kenneth Goodman's theory of reading. Goodman (1970b) defined reading as a psycholinguistic process in which the reader reconstructs a message which has been encoded by a writer as a graphic display. His theories change the focus of attention from the best way to reach letter sounds and words to the best way to teach comprehension.

Goodman called reading a "psycholinguistic guessing game" in which a reader makes a series of "guesses" or predictions based on graphic, syntactic and semantic information contained in the reading material, which he relates to his own store of cognitive data in order to confirm whether his prediction was right or wrong.

Because he has internalized syntactic structure, the

reader can predict, on the basis of prior meaning, what the graphic input will be, so he is highly selective, sampling the print just enough to confirm his prediction, and then moves on to form a new one. The more proficient he becomes, the fewer become the cues he needs to process.

He reacts to the redundancy and sequential constraints in the material which make prediction possible. He even reacts to the vague images he picks up from the peripheral area of his visual field, which may help to form or confirm his predictions.

Goodman emphasized that regressions are functional, necessary means of finding the point at which meaning diverges from the most recent prediction, if that prediction was not confirmed. Regressions must therefore be considered to be vital reading strategies, not mistakes. As he goes along, the reader is constantly checking to see if his interpretation is making sense. On the basis of the sense he obtains, if the graphic input he predicts is missing, he re-checks to find the point at which he made his error. He also re-checks if, on the basis of the graphic input, the message does not make sense or sound like real language.

Proficient readers use less information from the print, and provide more from their own experiential, conceptual backgrounds. Their predictions are more accurate and less in need of re-checking than those of beginning readers.

Goodman states that skill in reading requires not greater precision in letter-sound decoding or other word

attack skills, but rather more accurate prediction, based on greater control over language structure, and broadened experiences which increase concept development.

As the reading process re-cycles, the proficient reader keeps some confirmed predictions, discards others, and holds some for further confirmation.

Goodman emphasizes that the function of the brain in reading is more important than functions of the eye or ear. It is the brain's job to get meaning with the least amount of effort, and it expends less effort when it focusses on meaning than when it focusses on words or letter-sound relationships.

Goodman's Criticism of Other Reading Theories

Kenneth Goodman is of the opinion that theories of reading which do not involve psycholinguistic research are based on false assumptions. He criticizes them for failing to establish common terminology and criteria, so they could be compared. He emphasizes that reading methodology must minimize assumptions and be based on a complete understanding of the reading process as it actually exists. He does not claim to have achieved this complete understanding, but believes that through new insights obtained by linguistic theory it is possible to come much closer to an explanation of the real reading process.

One of Goodman's main criticisms of reading methodology is that the true linguistic function of so-called errors has not been recognized. These have been treated as weaknesses

to be eliminated, and often the extent to which they occur has been used to grade a reader's achievement. Goodman explains that these "errors" are not all detrimental to the reading process, and that they can be used as diagnostic tools with which to gain insight into an individual's reading strategies. He stresses that they can reveal important strengths, as well as weaknesses. They can and should play an important part in the planning of teaching strategies. He is particularly critical of reading teachers who consider legitimate dialect differences to be errors, even though the correct meaning of the written material has been obtained.

Behaviourist theories. When discussing behaviourist reading models (1974) Goodman remarked, " A kid can learn the way a rat can learn, but a rat can't learn the way a kid can learn."

He stressed that children do not normally learn piece by piece, in bits of stimulus-response behaviour which they later build into a complete whole. Instead, reading is an extremely complex process, with many systems operating simultaneously. When one part of this process is detatched and taught separately, the process is short-circuited, becomes artificial, and thus meaningless. Goodman warns that chopping language up into small portions turns it into abstractions which aren't real language and that this can neutralize or destroy a child's basic language competence.

Substrata factor theory. Goodman (1969) expressed the opinion that this is not a theory at all, but only "an artifact of manipulation of statistics generated by a set of reading tests." (p. 162) He stated that any awareness of the nature of language and of language use was missing from many theories of reading, and described them as having been "thinly built on partial views of the process of reading."

Decoding approaches. Goodman is vehement in objecting to those reading methods which emphasize de-coding approaches. He stresses the importance of the cumulative build-up of meaning, and warns that it cannot be separated from de-coding if reading is to be successful. Children who are having difficulties with methods which abstract de-coding from its necessary meaning environment are often "helped" with methods which abstract it even further, in isolated phonics drills which they have great difficulty transferring to the context later. Goodman feels that all skills can and should be taught in context.

He states that Chall's emphasis on de-coding was based on a misunderstanding of how the linguistic code is used in reading, and that code-emphasis programs ignore the fact that phonemes do not really exist outside of the full context system. They also ignore the fact that the basic reading process cannot be fragmented, because the reader doesn't use all the code information available to him, only enough to predict a language structure which is decodable to him. As

he becomes more proficient he doesn't need 100% de-coding accuracy, because he uses fewer and fewer code cues. The efficient reader minimizes his dependence upon visual detail.

Goodman (1974) told of a boy who could read with a few errors, but fairly fluently. When a teacher got him to focus on letter-sound relationships, however, his reading became slow, halting and laborious.

Many of the techniques which exist in oral reading do not exist in silent reading, because oral reading is directed at an audience, to which a message is to be communicated. A reader who is proficient in silent reading is not necessarily good at oral reading, because he must simultaneously decode the printed message to get at the meaning, and encode it into oral language. This means that he must reconstruct the meaning of the material at the same time as he is producing an oral equivalent of the graphic input. If phonetic accuracy is overstressed, he may recode the graphic input directly into oral output, without reconstructing, and actually short-circuiting, the meaning. It he is relying merely on graphic cues or word recognition, or does not have the experiential, cognitive framework with which to relate and integrate meaning, he may not decode to reach the deep structure, but merely recode the graphic symbols into letter-sound symbols to make words which do not make sense.

Goodman stated that on the basis of his research it appears that readers who are fairly proficient decode from the graphic input, and then encode from the deep structure,

skipping the recoding stage. Thus the oral output is not directly related to the graphic stimulus, and may involve transformation in vocabulary or syntax, without harming the meaning. This appears to be the highest form of the oral reading process, and it is possible for teachers who do not understand this to equate this transformed oral output with error, prompt the reader to correct it, and prevent him from using his natural language ability as he should.

Wardhaugh (1971) supports this position when he says, "No one is really sure what strategies successful readers do employ. There is reason to suspect that they do not use the strategies which teachers in the various phonetics approaches attempt to teach them."

Linguistic methods. Goodman said that early applications of linguistic theory to reading were applying it too narrowly. For example, when Fries emphasized the phoneme-grapheme regularity in his materials, he sacrificed a great deal of meaning, not realizing that meaning is the major means of learning to read, as well as being the major goal.

Goodman criticized Fries methodology as not being really psycholinguistic, although he gave that name to his program. Goodman states that no truly psycholinguistic reading method exists. He denies that one can ever exist, any more than a psychological or sociological method could ever exist, because any reading method based on a single principle is incomplete, no matter how valid the principle. A truly effective reading

method must be based on a complete understanding of the reading process, which has not yet been achieved.

Goodman believed that reading and the use of oral language involved similar skills. He stated that children act like language users when they read, and do use language skills. Therefore reading should be taught as if it is language.

He emphasized the fact that superficial data about reading behaviour is not enough to explain the real reading process, because there is a profound difference between what can be observed during the reading act, and the competence which makes that act possible.

There must be a more united effort to try to reach the true facts about the reading process. As Goodman put it (1974), "The power is always there in the kids themselves. We must work with them instead of at cross purposes."

Teaching Methods Related to Miscue Analysis

New teaching methodology is gradually emerging in relation to Goodman's theories of reading and miscue analysis, but it is not a psycholinguistic method of teaching. It is necessary to examine current teaching practices in the light of psycholinguistic theory and modify them in many ways.

One of the main things to change must be perspective. This new perspective must be pervasive and lead to new criteria for evaluating reading instruction. This instruction must be process, language and meaning centered. A new respect for language and the learner is necessary.

Language must be viewed as much more than mere strings of words. As a systematic, structured code used to represent meaning, its rules are actually the most important things a child learns--more important than letter-sound systems or vocabularies.

There must be more respect for the role of language in human learning, as a symbolic system with which to organize thoughts and as a medium for communication.

The teaching of reading consists of helping a language user to control the receptive written language process so that he may reconstruct a message which corresponds closely to that of the writer.

Reading teachers, when asked what their greatest problems are, usually reply that they are plagued with reversals, omitted endings, poor word attack skills, and regressions. Linguistic research shows that these are not really the most significant kinds of problems, because they are not comprehension centered. Teachers put too much emphasis on accuracy and sounding out carefully, but leave children on their own to learn to use context cues within reading material, build up concepts through reading, and to integrate meaning as they proceed. Teachers still often give students a science or social studies book which is full of concepts they have never had the opportunity to learn and expect them not only to understand them, but also to retain them.

The introduction of new words out of context before new stories is not necessary or desirable. Prompting pupils or

correcting them when they read orally prevents them from realizing that their miscues need correction and figuring out how to do it by themselves. Teaching phonics principles to whole groups or classes is unwise, because children have highly individual needs, and no single phonics difficulty is widespread enough to warrant this approach. Goodman feels that probably there are as many children suffering from an overdose of phonics as from too little phonics instruction.

It would be helpful for teachers to let children analyse some of their own miscues, and when a teacher discovers a type of miscue that is being made a great deal by a pupil, it is most effective to write some reading material for the pupil which contains many opportunities to learn to overcome the problem.

The emphasis in teaching reading today still remains too much on isolated skills, which are incompatible with efficient reading strategies. These can only be developed through reading in context. Instructional programs with the wrong emphases could even interfere with the development of integrated reading skills.

Reading instruction for the last four decades has been word oriented. Basal readers have been built around this word centered view. Phonics versus whole word method arguments are both concerned with the best way to teach words, and neither school of thought considers the role of meaning. Miscue analysis leads away from this word emphasis and toward comprehension.

Reading instruction has only one central goal--that of teaching children to understand written language. All other goals are subordinate to this one. All objectives must be stated in relation to this one overriding goal, and all evaluation must be made according to these objectives. The fundamental question in evaluation must be "How well can the learner reconstruct and understand the meaning of written language?"

Teachers should rely upon a child's retelling of a story to measure his comprehension, not upon the number of miscues, because the number of miscues does not correlate with the comprehension score. Accuracy in oral reading is often used as a measure of efficient reading strategies, when it actually often correlates more highly with lack of comprehension.

The teaching emphasis should be on language development and reading strategies instead of phonics and skills drills, and instead of saying "sound it out", teachers should be saying "does that make sense?"

Instructional Materials

Most basal readers are simplified in some manner. Some have controlled vocabularies, others have controlled spelling patterns, and still others have controlled sentence structure. Whatever the form of control, the result is artificial language. Most basal readers contain non-language in strange patterns which children have never heard. Children must be able to use their inherent language skills right from the

beginning of school. In Grade One they begin to draw on syntactic and semantic structure as soon as they begin to learn to read, if they are given reading material which is fully formed. Goodman has noticed that sometimes it is easier for a child to learn to read a more advanced book than a primer he is having trouble with, because he is able to use the syntax and semantic information in the more advanced book to supplement the graphic cues which are the only cues available in the primer.

If simplification occurs in basal readers it should be done by using the most common, expected phrase and sentence patterns which occur in oral language. The most important criterion is that it must behave like regular oral language which the children hear every day. The sentence patterns in most basal readers are uncommon in everyday speech or actually unreal.

Another way to control the complexity of language in school books is to control the complexity of slot fillers in patterns of familiar language. For example, instead of "Numerous vehicles are clogging our throughways," one could substitute "Many cars are filling our roads." The pattern and the meaning are the same, but the words are less complex.

Complex interrelationships between clauses, the number of syntactic relationships for each word in a sentence, and ambiguity caused by insufficient cues could all be reduced to good advantage without destroying normal sentence patterns or meaning. Ambiguity could be reduced further by adding more

redundancy, if necessary.

Function words are difficult for children to learn, because they have no meaning except in relationship to other words. They should be introduced carefully, in contexts of various types, to point out their potential meanings.

Basal readers should be written about subjects which really interest children, with as wide a variety of topics as possible. Concept control is more important than vocabulary control. Words seem much easier to teach than ideas, and quicker for children to learn, but Goodman warns that neither words nor ideas will be retained if ideas are not understood.

Goodman warns also that the structure of reading materials can cause a high incidence of miscues, if the language in them is awkward and unlike the children's own language. He emphasises that the word-centered theories of reading tend to produce reading materials of this type, whereas meaning centered materials contain more normal language.

Goodman (1974) mentioned that Language Experience materials and methods are good because the language used is the children's own. They have a disadvantage, however, in that the children already know the meaning. This removes the main goal of the reading process, which is to find out meaning. The teacher must build a bridge, therefore, to help the children begin to read material of which they do not already know the meaning.

Learning Disabilities

Previous to miscue analysis, many reading clinicians have been content to merely count up oral reading errors, then look up a norm on a chart to assign a reading grade. All miscues were considered to be errors. Now psycholinguistic theory has revealed that we must evaluate these errors. Even more revolutionary--we must not consider some of them to be errors at all, but rather to be indicators of how well the reader is using language skills in processing written information.

Some unexpected responses must be understood to be personal interpretations of the writer's message. Miscue research is beginning to provide new criteria with which to assess the reading performance of children with learning disabilities.

These criteria rest on the assumption that the purpose of reading is comprehension. If a fairly reasonable grasp of the meaning of reading material is shown, learning assistance teachers must begin to accept some miscues which they formerly called errors.

Depth research into miscue categories is necessary. For example, a study of substitutions alone can provide information about how well a reader is using the graphic, syntactic and semantic cue systems in reading material. The teacher can classify each reader according to the degree that each cue system is operating.

The pattern of a readers corrections is highly significant

to the teacher, who can tell whether a pupil is more concerned with the look and sound of words or with meaning, by the type of cues he corrects the most often. Thus the teacher can obtain valuable insights into the ways in which the child is processing and using language to interpret written material.

Goodman suggests that there is a great deal of work to be done in research on learning disabilities. He also mentions that the criteria for the identification of children with various types of learning disability have not yet been satisfactorily established.

Testing

Goodman stated that tests that deal with any aspect of reading other than comprehension must be considered diagnostic tools, not achievement tests. He warned that the purpose of skill tests is not the evaluation of general reading ability. The results of these tests should not be used for grades on report cards, because this practice can produce good grades for pupils who have learned phonics rules and lists of words in isolation, and poor grades for pupils who read with understanding but have resisted learning fragmented abstractions which are not useful to them in the obtaining of meaning from the material they read.

In some cases pupils are tested for reading achievement with lists of graded words presented in isolation from any context cues. Because all traces of syntactic and semantic

information are removed, only a very small part of the true reading process is being tested, and yet these tests are being used to screen, assess and predict the potential of many students. Goodman felt very strongly that these tests make it impossible for students to gain meaning, and should not be used as tests of reading. He considered them worse than no tests at all, because the information they supply is confusing and misleading. Reading is being treated here as though the performance of saying sounds to identify isolated words is the same as the reading process itself.

One researcher using miscue analysis discovered that if children read passages which were longer than 250 words, the pattern of their miscues changed. Goodman therefore advised that reading inventories be produced which have longer passages, so that miscue analysis may investigate this phenomena further.

Related Studies Using Miscue Analysis

Effectiveness of Dialect Reading Material

Sims (1972) used miscue patterns to compare the effect of material written in standard English and black dialect English on the oral reading competence of ten black second year pupils of average ability. She supported the views of both Kenneth and Yetta Goodman that miscue quantity is not as significant as quality, and that there is no apparent relationship between the two dimensions of measurement.

Although she expected that the children would read

dialect versions of reader stories with greater ease and comprehension than standard English versions, she found that they dealt with both equally well. The major implication of her study is that dialect reading materials do not appear to be any more effective than those in the usual standard English. She suggested also that it is difficult to establish norms for dialect materials as these change from one comparatively small region to another, thus limiting their use. She concluded that current language experience methods of using black pupils' own oral language as reading material is a satisfactory supplement to standard English reading programs.

Comprehension Examined with Miscue Analysis

Rousch (1972) investigated methods used to test reading comprehension and their validity in relation to the psycholinguistic nature of the reading process. He analysed the miscues and story retelling of 72 Grade IV readers in order to test their comprehension, and compared this analysis to scores on various comprehension tests. He found that children often did not understand tasks required in these tests, and that their scores on them were low even though miscue analysis showed their comprehension to be satisfactory.

He warned that teachers need to be aware of the differences between comprehension behaviour observed in oral reading situations, which is an integral part of language competence, as opposed to comprehension which is performance oriented. He emphasized that what is measured beyond the

reading process in the form of performance tests is not necessarily related to intelligent comprehension of the material.

Rousch found a significant relationship between prior conceptual knowledge and oral reading behaviour, and stressed that teachers should supply a conceptual background for children before requiring them to read with comprehension, particularly in the content areas.

Developmental Changes of Focus in Attention to Reading Cues

Biemiller (1970) used miscue patterns to identify three separate phases beginning readers on basal reading programs appeared to pass through. Oral reading errors were analysed in terms of their contextual and graphic constraints. The three main phases identified were:

Phase 1: The predominant use of contextual information as indicated by a predominance of grammatically and semantically acceptable errors. Biemiller suggested that the children were trying to minimize the use of graphic information in the first phase by using information previously learned auditorially, and that they were attempting to make guesses based on context comprehension provided by recognition of sight words.

Phase 2: A predominance of omission errors plus a significant increase of graphically constrained errors. In this phase the children's primary attention appeared to

shift to graphic information.

Phase 3: An increase in errors which were simultaneously graphically and contextually constrained, plus a reduction of omission errors. This phase appeared to occur when the children had acquired enough phonic skills to attend to both graphic and contextual information.

Children who spent longer in Phase Two exhibited more graphic substitution errors than those who moved into Phase Three earlier. They also made high percentages of contextual errors during their last months in Phase Two, indicating increasing skill in using both graphic and contextual information.

In general, children who moved into Phase Two earliest were better readers at the end of Grade I. However, the length of time a child stayed in Phase One did not appear to be related to his final reading achievement in the upper grades.

Biemiller conjectured that transition to the high omission phase may mark a child's first grasp of the idea that one specific word is associated with each graphic pattern. He noted that the way a child recognizes this correspondence is still not clear, and remarked that some context-emphasizing approaches may be inefficient in teaching the concept. He said that teachers trained to recognize patterns of oral reading errors would realize that omission errors are an indication of progress rather than weakness, as a child

realizes that his auditorially obtained context cues are insufficient, and starts to try to apply graphic cues.

An educational implication he derived from his study was that early use of contextual and picture cues as recommended in most basal reader series may be ill-advised, as the longer a child stays in the first phase without showing an increase in the use of graphic information, the slower his reading progress. He suggested that early reading materials be constructed so that children would be restricted to graphic cues, presented out of context. This suggestion is not appropriate in the light of psycholinguistic principles which stress the use of meaning-based materials right from the beginning of reading instruction. Goodman (1971) emphasized that there should never be an argument about whether to start with code or meaning, as the code only operates in relationship to meaning.

Miscues Reflect Instructional Conditions

Barr (1972) questioned Biemiller's assumption that all beginning readers pass through three sequential developmental phases. She interpreted the phases as reflections of changing instructional demands on the children. She interpreted a high precentage of non-response errors and graphically constrained errors as a typical response to phonics-based instruction, and a high percentage of whole word errors unrelated to graphic stimuli as a typical response to sight-word, context-based instruction. Her study supports the

hypothesis that different teaching methods influence word recognition strategies in predictable ways.

Barr recognizes the effectiveness of miscue pattern interpretation as a diagnostic tool with which to specify appropriate teaching techniques, and advocates further research on the interrelationships between changes in reading behaviour and varying instructional methods, in order to increase its accuracy.

Other Developmental Patterns in Beginning Readers

Y. Goodman (1967) used Miscue Analysis to study the reading development of six children throughout their first year of school. From their miscue patterns she was able to examine their reading behaviour in minute detail. She described their individual strengths and weaknesses at various stages in their acquisition of reading skills, and compared them to those of the other subjects.

She prescribed specific instruction for each child's reading program in second year, and hoped to follow their progress through the grades.

Her study differed from this study of six Grade I children in that this study follows the children for two months, while hers followed them for ten. The major point of difference is that she did not select some good and some poor readers with the intent to compare their reading strategies. Nevertheless, many of her findings and conclusions will be useful to compare with those of this study.

Summary of the Review of Literature

This review began with a brief survey of early reading methodology. Controversy over whole-word versus code-breaking emphases was included next, followed by examinations of Behavioural Psychology and Cognitive Theories of Reading.

The applications of linguistic theory to reading by Leonard Bloomfield, Robert Hall and Charles Fries were next discussed. Fries' Merrill Linguistic Readers were examined and evaluated.

Frank Smith's definition of psycholinguistic theory and its impact on the study of reading came next, followed by an explanation of Richard Venezky's Reading Model, plus Noam Chomsky and Morris Hall's negative reaction to it. Sub-strata Factor, Systems of Communication, Cognitive and Reading Competency Theories were then compared.

Frank Smith and Kenneth Goodman's psycholinguistic approaches to the teaching of reading were next examined, followed by Goodman's criticism of other reading theories and his ideas regarding teaching models, instructional materials, diagnosis and treatment of learning disabilities and educational testing.

Several related studies which used various adaptations of miscue analysis were examined next. These included Rudine Sims' investigation into the effectiveness of dialect reading materials, Peter Rousch's study of reading comprehension as measured by miscue analysis and on standard comprehension tests, Andrew Biemiller's identification of three phases in

reading development, and Rebecca Barr's criticism of his approach, with her own interpretation of his findings. The final item was Yetta Goodman's developmental study of miscues made by six subjects throughout one year of school.

CHAPTER III

MISCUE ANALYSIS

How Miscue Patterns Reveal Strengths and Weaknesses

The percentages of miscues in various categories reflect the degree to which a reader is using the graphic, syntactic and semantic cues available to him in the reading material.

If a reader has a high percentage of substitution miscues which have the same or similar meaning as the expected response, and are semantically acceptable in relation to prior meaning, this is evidence that he is using semantic cues effectively.

If he has a high percentage of substitution miscues which fit grammatically into sentences and are thus syntactically acceptable, even though not semantically acceptable, this is evidence that he is using syntactic cues effectively.

If he has a high percentage of substitution miscues which are graphically similar to the expected response, either by starting with the same letter or having similar clusters of letters, this is evidence that he is using his graphic cues effectively.

The most significant aspect of analysis appears when these three percentages are compared. For example, if a reader's scores are comparatively well balanced in that none are much lower or higher than the others, he is using all three cue systems effectively. However, a score in one system which is much lower than the others indicates a weak

area. It is not quantity of miscues which show strength or weaknesses, therefore, but the quality of miscues, and their effect on meaning.

Focus on comprehension. In order to determine a reader's "comprehending score" (Goodman, 1973) the percentage of his substitution miscues which are semantically acceptable is added to the percentage of his substitution miscues which were at first not semantically acceptable, but which he corrected so that they became acceptable. This combined score shows the degree to which the reader is able to keep his mind focussed on meaning.

The miscue patterns of a proficient reader usually show a high percentage of semantic acceptability even before correction. This is the most significant indication of a reader's pre-occupation with meaning. Effective readers often tend to correct only miscues which result in meaning loss, and not correct, or even realize they have made a miscue which does not.

The proficient reader's miscue patterns also often show the preservation of appropriate grammatical structure even when meaning is temporarily lost, i.e. his inflections and intonation are grammatically acceptable.

Overconcern with word accuracy. Close graphic similarity between observed and expected responses even though meaning is lost, and corrections of miscues which do not change the meaning are indicative of an overconcern with word accuracy

at the expense of meaning. The reader is concerned only with the surface structure of the reading material, and often ignores syntactic and semantic cues, preventing himself from reaching the deep structure. The reader whose miscues exhibit this pattern often makes repeated attempts to decipher a word which does not make any difference to the meaning.

Conceptual overload. Another pattern of miscues is seen when the reading material contains concepts which are too difficult for the reader. A high percentage of miscues which are syntactically acceptable, and a low percentage which are semantically acceptable often indicates that the reader has given up the attempt to make sense, and is using only the graphic and syntactic cue system effectively. The semantic cues are useless to him if he has no mental concepts in his cognitive framework with which to match them.

Strengths and weaknesses. Miscue analysis throws a strong spotlight onto a reader's ability to take advantage of the three kinds of cues available to him. This enables a teacher to identify his strengths and weaknesses, and to show him how to overcome the weaknesses through specific activities which show him how to use cue systems he was not using effectively.

Retelling score. In order to establish a valid method of scoring the reader's comprehension when retelling a story, each story was broken up into communication units of the same

type used in the analysis of oral language (Loban, 1963). Each communication unit was given a value of five points, which were added together to form the total possible score. Each reader was given five points if he supplied the content of a communication unit, or two and a half points if he supplied only part of it. After a reader had described everything he could recall about a story, he was helped to recall other items with general questions of a type which did not supply him with any information. Since the subjects were in their first year of school, they did not yet show the ability to make inferences, generalizations about relationships between facts or incidents, or make predictions about future developments. The Retelling Score, therefore, was based on the recall of facts, characters and events. An example of a Retelling Score sheet is provided in Appendix C.

This kind of comprehension test is different from the usual list of comprehension questions which supply some information as they ask for more. In this test, the reader must supply all the information about who was in a story, who they were, what they were like, what they did, what happened, and the sequence in which it happened. This is similar to the Retelling Score obtained in the Reading Miscue Inventory Kit (Burke and Goodman, 1972), and is a measure of the reader's ability to deal verbally with information, facts and relationships.

Miscue Analysis for the Six Subjects in this Study

Abbreviations:

M = Miscue

©M = Corrected Miscue (self-corrected by the reader)

CS = Comprehending Score

RS = Retelling Score

The six categories into which miscues were classified:

SFL = Same First Letter

GS = Graphically Similar

SGF = Same Grammatical Function

SM = Same Meaning

OM = Omission

INS = Insertion

Definitions:

Comprehending Score: The percentage of miscues semantically acceptable before correction, plus percentage of miscues which were semantically acceptable after correction.

Retelling Score: The percentage of communication units correctly retold for each reading selection. Burke and Goodman (1972) considered that readers with Retelling Scores greater than 50% were highly effective readers, readers with Scores higher than 40% were moderately effective, those with Scores above 25% were making some effective use of reading strategies, but that readers who scored below 25% were making ineffective use of reading strategies.

The Interpretation of Miscue Relationships

Goodman (1973) explained that the relative percentages of miscues found in various categories indicate the relative amount of attention a reader is paying to grammatical, syntactical and semantic cues. A high percentage of miscues in the Same First Letter and Graphically Similar categories indicates a high concern with graphic cues. A high percentage of miscues in the Same Grammatical Function category shows that a reader is highly aware of, and is using, syntactic cues. A high percentage of miscues in the Same Meaning category indicates that the reader is using semantic cues effectively, both as an ongoing reading strategy and as a means to his final goal of obtaining meaning.

Miscues in the Same Grammatical Function and Same Meaning categories are considered to be of greater functional value or "quality" than those in the Same First Letter and Graphically Similar categories, because if a reader's miscues are predominantly in these areas he is paying too much attention to graphic cues and too little attention to syntactic or semantic cues, and is less likely to obtain meaning from the reading material.

Table 2

Percentages of Miscues, Corrected Miscues, Miscues in each of the Six Categories, Comprehending and Retelling Scores for each of the Six Subjects in the Oral Reading of 1,284 Words

CS = Comprehending Score RS = Retelling Score

	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
M	51	29	19	4	8	7	20
Ⓒ M	2	9	3	39	31	37	20
Categories							
SFL	10	76	50	63	74	49	54
GS	9	39	42	59	55	34	40
SGF	8	40	29	65	54	73	45
SM	2	2	15	54	21	28	20
OM	78	8	30	17	7	8	25
INS	0	0	1	4	1	2	1
CS	4	11	17	78	50	56	36
RS	4	39	29	57	64	52	41

In Table 2, Subjects Four, Five and Six in Group B have higher percentages of miscues in both the Same Grammatical Function and Same Meaning categories, indicating that their miscues have more functional value than those of Subject One, Two and Three in Group A. The Group B subjects also have higher Comprehension and Retelling Scores than the subjects in Group A, which indicates that the more functional miscues were related to better comprehension of the reading material.

The subjects in Group B had higher percentages of their miscues corrected than those in Group A, which suggests that their greater preoccupation with meaning made them more aware of miscues and more concerned with correcting them.

The subjects in Group B all have Retelling Scores greater than the minimum 50% assigned to highly effective readers (Burke and Goodman, 1972). These contrast with those of the subjects in Group A, whose scores fall below the 40% minimum assigned to moderately effective readers. Only Subject One, however, scored below 25% and is thus considered to be making ineffective use of reading strategies. Subjects Two and Three are making some effective use of reading strategies. It is interesting to note that although Subject Three, the Native Indian boy, had a higher Comprehending Score than Subject Two, his Retelling Score was lower. It is possible that although he had a better grasp of meaning as he read, his expressive language problems interfered with the communication of meaning in retelling.

Correction Patterns

Some readers have been made so conscious of the need to correct all reading errors that they correct high quality miscues as well as those which interfere with meaning. More proficient readers often correct only those miscues which change the grammatical structure and do not sound like real language, and those which do not make sense.

Goodman (1973) noted that the relative percentages of

self-corrections of oral reading miscues found in the various categories indicate the relative amount of attention a reader is paying to graphic, syntactic and semantic cues. A high percentage of Corrected Miscues in the Same First Letter and Graphically Similar categories indicates a strong concern with graphic cues. A high percentage in the Same Grammatical Function category indicates a strong awareness of syntactic cues. A high percentage in the Same Meaning category shows that the reader is using syntactic cues effectively.

Table 3

Percentages of Miscues in each of the Six Categories which were Corrected by each of the Six Subjects during the Oral Reading of 1,284 Words

Categories	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
SFL	40	77	83	100	74	46	70
GS	30	41	33	83	42	9	40
SGF	40	24	0	72	26	42	34
SM	10	6	0	28	7	9	10
OM	2	0	0	0	0	12	2
INS	0	0	0	6	0	6	2

The correction pattern of Subject Three, the Native Indian boy, is interesting in that he did not correct any syntactically or semantically acceptable miscues. This might at first be interpreted to mean that he left them as they were because

they did not change syntax or meaning, but when the pattern of his miscues, Retelling and Comprehending Scores is considered, it is more likely that he was not familiar enough with standard English syntax and deep structure to know how to correct them. This matter is discussed further in the detailed study of this subject in the next chapter.

It is interesting to note that Subject Four, who has the highest Comprehending Score and the highest number of Same Meaning miscues in Group B, also has the highest number of corrections in each category (Table 3). The fact that he corrected 100% of his Same First Letter miscues, and 83% of his Graphically Similar miscues suggests that he is overly concerned with surface accuracy, even though his use of syntactic and semantic cues is effective. Less concern with complete surface accuracy might result in even better comprehension.

The correction patterns of Group A resemble those of Group B in that a lower percentage of Same Meaning miscues has been corrected. The interpretations of the patterns could be different for each group, however. The subjects in Group A had very low percentages of Same Meaning miscues available to correct, because significantly fewer of their miscues were of that type. For example, Subject One corrected the only Same Meaning miscue he made in all 24 reading selections. This one miscue was 2% of his total miscues, and 10% of his corrections. The subjects in Group B had higher percentages of Same Meaning miscues available for correction, but corrected

only a small percent compared to their corrections in other categories, because they did not disrupt syntax or meaning. Table 4 illustrates this point:

Table 4

Percentages of Same Meaning Miscues Compared to Percentages of Corrected Same Meaning Miscues for each of the Six Subjects in the Oral Reading of 1,284 Words

	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
SM Miscues	2	2	15	54	21	28	20
Corrected SM Miscues	10	6	0	28	7	9	10

Procedures, Results and Comparisons of Perceptual and Language Tests

The subjects were given perceptual and language tests in order to identify and examine any visual, auditory or language factors which might affect the interpretation of the miscue analysis. Copies of these tests are available in Appendix C. Interpretations of the results of these tests and of the miscue analysis will be discussed together in the next chapter.

The grouping of the tests and tables in this chapter was determined by the type of skill being examined:

I Visual Perception: A Letter-Discrimination Test
B Word-Discrimination Test
C Memory Test

II Auditory Perception: A Letter-Sound and Word-Discrimination Test
B Memory Test
C Listening Test

III Language Development: A Vocabulary Test
B Articulation Test
C Conceptual Development Test
D Letter-Sound Correspondences Test
E Oral Language Ability Test

The nature of the tasks and aims of the tests determined the type of scores shown on the tables. Raw frequencies are shown for tests in which a subject's ability to remember a number of items was being examined, and in which standardized tests produced this type of score. Other standardized tests produced grade level scores, intelligence quotient scores, and mental age scores in years and months. In all other cases, percentage scores were used.

I Visual Perception Tests

Table 5

Percentages of Correct Responses for each of Six Subjects on Letter and Word Discrimination Tasks

	Group A			Group B		
Tasks	S1	S2	S3	S4	S5	S6
Letters	100	90	100	100	100	100
Words	92	77	92	100	92	100
Total Items	96	84	96	100	96	100
Mean for Total Items: 95						

The subjects picked out identical letters and words from 21 groups of similar words and 13 groups of similar words. Each group was exposed for approximately five seconds. The subjects responded by pointing to the two items they considered to be identical.

Subject Two is the only one of the six subjects who appear to be less competent than the others in these tasks.

Table 6

Number of Images Successfully Retained for each of Six Subjects on Random and Sequential Picture and Letter Memory Tasks

	Group A			Group B		
Tasks	S1	S2	S3	S4	S5	S6
Random Pictures	4	5	4	4	3	4
Sequential Pictures	0	3	3	2	3	4
Total Pictures	4	8	7	6	6	8
Random Letters	2	4	5	5	3	5
Sequential Letters	2	4	5	4	3	5
Total Letters	4	8	10	9	6	10
Total Items	8	16	17	15	12	18
Total Possible: 24			Mean for Total Items: 14			

Cards which contained from one to six pictures or letters were exposed to each subject for approximately five seconds, then covered. The subjects responded verbally, recalling the

items first in random order, then in sequential order.

Subjects One and Five appear to be less competent than the other subjects at these tasks. It is interesting to note that Group A and Group B each have one member with weaknesses in these areas.

II Auditory Perception Tests

Table 7

Number of Errors for each of Six Subjects on Auditory Discrimination Tasks

Group A			Group B		
S1	S2	S3	S4	S5	S6
1	0	11	6	0	0

The subjects were given the Wepman Test of Auditory Discrimination (1958) in which they listened to word pairs given verbally by the examiner, and to distinguish between those which were identical and those which were different by one consonant, one vowel sound, or one consonant blend. According to the test manual, more than six errors for a child five years old, or five errors for a child six years old signifies inadequate development.

Subject Three has noticeably more errors in these tasks than the other subjects. It is possible that because he is a Native Indian he has not had the opportunity to hear enough standard English oral language to enable him to make these discriminations.

Subject Four was only five years and eleven months old at the time of the test. Six errors for him, therefore, would not signify inadequate development.

Table 8

Number of Words and Digits Successfully Repeated for each of Six Subjects on Random and Sequential Auditory Memory Tasks

	Group A			Group B		
Task	S1	S2	S3	S4	S5	S6
Random Words	4	6	4	3	5	4
Sequential Words	4	5	3	3	5	3
Total Words	8	11	7	6	10	7
Random Digits	5	8	5	4	5	6
Sequential Digits	6	8	4	3	5	6
Total Digits	11	16	9	7	10	12
Total Items	19	27	16	13	20	19
Total Possible: 24			Mean for Total Items: 19			

Each subject listened to lists of one to six words and of one to six digits (I.T.P.A. Subtest, 1968) read aloud by the examiner at a rate of one per second, and responded by repeating each list verbally, first in random order, then in sequential order.

Subjects Three and Four, one each from Groups A and B, were less adept at these tasks than the other subjects. It is

possible that Subject Three's Native Indian background and subsequent lack of experience with standard English words had some effect on his ability in this area. The fact that Subject Four was younger than the other subjects may have affected his abilities at these tasks.

It is worth noting that these two Subjects had lower scores in both Auditory Discrimination and Auditory Memory.

Table 9

Maximum Grade Levels Achieved at 60% Comprehension by each of Six Subjects on Listening Comprehension Tasks

Group A			Group B		
S1	S2	S3	S4	S5	S6
3	4	3	4	4	5
Mean: Grade 4					

The subjects listened to graded reading selections from the Spache Reading Diagnosis Scales (1963) read aloud by the examiner, and answered comprehension questions based on each. The highest reading selection to which a subject can respond with at least 60% of correct answers in considered by Spache to be the subject's potential reading level, i.e. the level to which his reading could develop under favourable conditions.

Subjects One and Three performed less ably than the other subjects at these tasks. Here again, Subject Three's Native Indian language handicap may have affected his performance.

III Language Development Tests

Table 10

Chronological Age (C.A.), Mental Age (M.A.) and Verbal Intelligence Quotient (I.Q.) for each of Six Subjects on Picture and Word Association Tasks. C.A. and M.A. indicated in Years and Months, I.Q. in Percentages

	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
C.A.	6.4	6.6	6.2	5.11	6.9	6.1	6.6
M.A.	6.4	5.1	5.3	6.6	8.2	8.2	6.3
I.Q.	104	93	89	105	112	125	105

Each subject was given the Peabody Picture Vocabulary Test (Dunn, 1959) in which he was asked to look at a series of pages, each containing four pictures, and to choose one of the four to match a stimulus word which was read aloud by the examiner. The subjects responded by pointing to the picture of their choice, or by saying its number on the page aloud.

The mental age and intelligence quotient scores obtained on this test have been used in this study to apply only to vocabulary range, not to general intelligence. The Peabody test is not considered to be valid for Indian children, and was used in this study only as a means of examining comparative vocabulary ranges.

Subjects Two and Three appear to have more restricted

vocabularies than the other subjects. Subject Two may lack adequate language models at home, and as before, Subject Three's performance may be affected by his cultural background.

Table 11

Number of Errors for each of Six Subjects on Word Articulation and Letter-Sound Correspondences Tasks

Tasks	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
Articulation	3	0	1	2	0	0	1
Lower Case Letters	7	3	7	1	3	2	4
Upper Case Letters	8	0	7	0	3	2	3
Total Letters	15	3	14	1	6	4	7

Articulation Test: Each subject was given the Webster Speech Test (n.d.) in which he said the name of pictured objects. The examiner listened for the correct articulation of certain sounds in each word.

Subjects One and Four were less adept at these tasks than the other subjects. The fact that Subject Four was not yet six years old when he took the test could have had some effect on his performance.

Letter-Sound Correspondences Test: Each subject was shown the upper and lower case versions of alphabet letters

in mixed order, and asked to supply the corresponding sounds they had been taught.

Subjects One and Three performed less ably at these tasks than the other subjects. The sounds of standard English may be less familiar to the Native Indian subject, Number Three, and therefore more difficult to remember. He achieved above average scores on visual discrimination and visual memory tasks, and thus presumably may find it less difficult to remember the graphic symbols than the sounds which are supposed to go with them.

Table 12

Maximum Grade Levels achieved at 70% Comprehension by each of Six Subjects on Word Opposite Tasks

Group A			Group B			Mean
S1	S2	S3	S4	S5	S6	
I	II	0	III	IV	III	II

Each subject was given the Botel Opposites Test (1970) which is used to determine a subject's ability to categorize, to master abstract concepts, and to relate concepts. It is also used to estimate potential in language and reading achievement. A subject passes each level if he can attain a score of 70% or more. Groups of four or five words were read aloud by the examiner. Each subject responded by verbally repeating words he considered to be opposites.

Subject One had difficulty in grasping the nature of the

task required in this test, and tended to forget it as he proceeded. Subject Three could not grasp the nature of the task. Once again, his lack of experience with standard English has left him unequipped to handle concepts of this type in our language, even though he may be able to handle them in his own language.

Oral Language Ability Tests: These tests were based on 100 word samples of spontaneous oral language which were transcribed into written form from audio tape recordings. These had been made along with the oral reading recordings. The transcriptions are available in Appendix D.

Table 13A

Number of Words per C U, Subordinate Nouns, Overt Action Verbs, and Uses of First Person Singular for each of Six Subjects per 100 Words of Oral Language

	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
Words per C U	7	7	2	4	5	7	5
Subordinate Nouns	14	18	4	13	15	20	21 with Subj. 3 * 16 without " "
Overt Action Verbs	19	11	13	21	16	10	15
Uses of First Person Singular	1	4	0	3	2	10	3

* Subject Three has a disproportionate percentage of nouns compared to the other five subjects, because his Communication Units contain fewer words.

Table 13B

This section of Table 13 contains criteria established by Loban (1965) and Brown (1957) for maturity of Speech Development. The greater the number of these criteria present in language, the greater its maturity level. The number of Words per C.U.is included in Section A because the restriction of the language sample to 100 words caused the number of words in each C.U. to occur in inverse proportions to the number of C.U.'s.

Contents: Number of Communication Units (C.U.), Words per C.U. Subordinate Clauses, Tentative Statements, Superordinate Nouns, States of Being Verbs, Visual Adjectives, and Non-visual Adjectives for each of Six Subjects per 100 Words of Oral Language

	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
C.U.	14	15	6/	25	2/	15	25 with Subj. 3 18 without " "
Subordinate Clauses	0	0	0	0	0	0	0
Tentative Statements	0	0	0	1	1	2	1
Superordinate Nouns	0	0	0	0	1	1	0
States of Being Verbs	1	3	1	4	5	8	4
Visual Adjectives	1	2	3	2	4	0	2
Non-visual Adjectives	2	0	0	1	2	1	1
Total Items	4	5	4	8	13	12	8

The analysis of the oral language samples was based on the theories of Walter Loban and Roger Brown. Loban's study, The Language of Elementary School Children (1965) provided the

concept of the "Communication Unit" as a measurement of fluency, and techniques for examining vocabulary, sentence structure, coherence, organization and cognitive development. A communication unit is a meaningful syntactic group of words which cannot be separated without loss of meaning. As oral language matures it contains more words, more communication units and more words in each communication unit. It also contains a wider vocabulary range, more modifiers, greater coherence, more logical organization, more accurate use of verb agreement and tense consistency, more frequent use of subordinate clauses, a more objective point of view (less use of the first person singular), and more tentative or conditional statements.

Brown's study, "Linguistic Determinism and the Part of Speech" (1957) provided a basis for the examination of nouns, verbs, adjectives and cognitive development. As language matures it contains more superordinate or abstract nouns, more adjectives which describe qualities subtler than visual characteristics, and more "states of being" verbs such as "seem", or "wish" than verbs of overt action such as "sing" or "jump".

Subjects One, Two, Three and Four appeared to have immature language abilities compared to Subjects Five and Six. Subject Five exhibited more characteristics of mature language than the other subjects.

Table 14

Quality of Vocabulary Range, Coherence, Logical Organization, Verb Agreement, and Tense Consistency for each of Six Subjects per 100 Words of Oral Language. Quality estimated Subjectively by Author: 2 = Good; 1 = Fair; 0 = Poor

	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
Vocabulary Range	1	1	1	1	1	2	1
Coherence	1	1	1	2	2	2	2
Logical Organization	0	2	2	2	2	2	2
Verb Agreement	2	0	0	2	2	2	11
Tense Consistency	2	0	1	2	2	2	2
Total Points	6	5	4	9	9	10	7

All three subjects in Group A exhibited fewer characteristics of mature language than the subjects in Group B, and conversely, the Group B subjects exhibited fewer characteristics of immature language than the Group A subjects.

Table 15

The Identification of Areas for each of the Six Subjects in which Strength or Weakness is shown in the Perceptual and Language Tests.

Relative norms were obtained by considering scores above a mean to show strength, scores at a mean to show average ability, and scores below a mean to show weakness.

S = Strength A = Average Ability W = Weakness

Tests	Group A			Group B		
	S1	S2	S3	S4	S5	S6
Visual Discrimination	S	W	S	S	S	S
Visual Memory	W	S	S	S	W	S
Auditory Discrimination	A	S	W	A	S	S
Auditory Memory	A	S	W	W	S	A
Listening Comprehension	W	A	W	A	A	S
Vocabulary Development	A	W	W	A	S	S
Articulation	W	S	A	W	S	S
Letter-Sound Correspondences	W	S	W	S	S	S
Concept Development	W	A	W	S	S	S
Oral Language Development	W	W	W	A	S	A
Total Number of Strengths	1	5	2	4	8	8
				Mean = 5		
Total Number Weaknesses	6	3	7	2	1	0
				Mean = 3		

As shown in Table 15, Group A as a whole exhibited eight strengths and sixteen weaknesses, whereas Group B exhibited twenty strengths and only four weaknesses.

Perceptual and Language Tests Related to Reading Achievement

The results of the perceptual and language tests were compared to the results of the miscue analysis in order to examine possible relationships between them.

Table 16
Percentages in Comprehending and Retelling Scores for each of the Six Subjects in the Oral Reading of 1,284 words

	Group A			Group B			
	S1	S2	S3	S4	S5	S6	Mean
Comprehending Score	4	11	17	78	50	56	36
Retelling Score	4	39	29	57	64	52	41
Average Score	4	25	23	68	57	54	39

As shown in Table 16, the reading achievement in terms of comprehension of the Group A subjects is lower than the reading achievement of the Group B subjects.

Table 17

Number of Subjects in Group A and Group B with Relatively Strong (S), Average (A) or Weak (W) Scores on Ten Perceptual and Language Tests

Tests	Group A			Group B		
	S	A	W	S	A	W
Visual Discrimination	2	0	1	3	0	0
Visual Memory	2	0	1	2	0	1
Auditory Discrimination	1	1	1	2	1	0
Auditory Memory	1	1	1	1	1	1
Listening Comprehension	0	1	2	1	2	0
Vocabulary Development	0	1	2	2	1	0
Articulation	1	1	1	2	0	1
Letter-Sound Correspondences	1	1	2	3	0	0
Concept Development	0	1	2	3	0	0
Oral Language Development	0	0	3	1	2	0

Tables 16 and 17 Compared

Visual Perception

Visual discrimination. Despite low reading scores, two Group A subjects exhibited strength in these tasks.

Visual memory. As with visual discrimination, two Group A subjects showed strength. Despite high reading scores, one subject in Group B showed weakness in these tasks.

Among these six subjects there seems to be little relationship between visual perception tasks and reading achievement.

Auditory Perception

Auditory discrimination. One subject in Group A showed average ability, and one showed strength in these tasks despite low reading scores.

Auditory memory. As with auditory discrimination, two subjects in Group A exhibited average ability and strength. One subject in Group B showed weakness at these tasks despite high reading scores. The subjects in each group showed the same distribution of strengths and weaknesses on these tasks despite the differences in their reading achievement.

Among these six subjects there seems to be very little relationship between auditory discrimination and memory tasks and reading achievement.

Listening comprehension. One subject in Group A exhibited average ability, two exhibited weakness. Two subjects in Group B showed average ability, and one showed strength. No subjects in Group A showed strength in this area, and no subjects in Group B showed weakness.

Among these six subjects there does appear to be a relationship between ability in these tasks and reading achievement.

Language Development

Vocabulary development. Two Group A subjects exhibited weakness and one showed average ability. Two Group B subjects showed strength; one showed average ability. No subjects in Group A exhibited strength; no subjects in Group B exhibited weakness.

Articulation. In Group A, one subject showed strength, one showed average ability, and one showed weakness. In Group B, two subjects showed strength and one showed weakness.

Letter-sound correspondences. Two Group A subjects exhibited weakness; one exhibited strength. All three Group B subjects exhibited strength.

Concept development. Two Group A subjects exhibited weakness; one showed average ability. All three Group B subjects exhibited strength.

Oral language. All three subjects in Group A exhibited weakness. One subject in Group B exhibited strength; two showed average ability. No subjects in Group B exhibited weakness.

Among the six subjects in this study there does appear to be a relationship between language development and reading achievement, especially in vocabulary development, concept development and oral language ability. Letter-sound correspondences appear to have less relationship than the first three abilities mentioned, and articulation seems to have the least relationship of the five language abilities examined.

Summary

Visual and auditory perception do not appear to have any discernable relationship to reading achievement for the six subjects in this study. Listening comprehension does appear to be related, and Language development appears to be the most directly related to reading achievement. Listening comprehension, while placed with auditory perception tasks, can, in the opinion of the author, also be considered a language skill, as a child uses syntactic and conceptual skills to reach the deep structure and obtain meaning from the spoken language he hears in a manner similar to the ways he uses these skills to produce oral language himself.

The Usefulness of Perceptual Tests

In the opinion of the author, based upon these findings, the previous use of perceptual tests, and remedial reading work with children, the usefulness of visual and auditory perceptual tests is limited. In cases of gross perceptual disability they may reveal problem areas which should be dealt with, but for most children, a teacher's time would probably be spent to better advantage testing oral language ability, listening comprehension, vocabulary and conceptual development.

Another way of looking at perceptual tests is to consider whether they actually measure the perceptual abilities we assume they do. It may be that the results could be reflecting a subject's attitudes toward the tasks, and also toward school, reading, his teacher, his parents, and his own self-image. As

Stott (1971) remarked, many of the formerly accepted explanations of learning disability in terms of psychometric-cognitive and perceptual variables are now being questioned. Stott stated that primary learning-handicaps are aspects of impairment of temperament, and that school problems arising from these tend to generate secondary behavioural handicaps. In extreme cases, he explained, these may resemble retardation, and can only be distinguished from genuine retardation by their inconsistencies.

To conclude, perceptual testing may occupy valuable time, on the part of both teachers and pupils, which would be better spent on more meaningful and productive activities.

Language Development Related to Reading Achievement

By examining language abilities, teachers may gain valuable insights which can help them to diagnose their pupils' reading problems. The basic premise of psycholinguistic reading theory is that learning to read is an extension of learning to understand and speak language. Psycholinguists emphasize that unless a child has acquired language skills which include adequate concept development and accompanying vocabulary, plus the ability to generalize and relate concepts to one another, he cannot succeed in reading, because he is not equipped to process syntactice or semantic cues. Even if he learns to blend sounds together in response to graphic cues, he cannot obtain meaning without the other two, as the graphic cue system contains meaning only in relation to them.

All three systems must be involved, and without adequate language skills, a child cannot cope with them.

Smith (1973) referred to the two levels of oral and written language as surface and deep structure, with syntax a bridge which permits the language user to operate between the two. He noted (1971) that the importance of the syntax link between the two levels is that there is no simple correspondence between the surface structure of language and meaning, because the meaning of a sentence is not merely the sum total of the meanings of the individual words it contains.

Smith emphasized that a beginning reader approaches written language from the visual, surface structure side, and tries to use syntax to penetrate to the deep structure and obtain meaning. If he is immature or handicapped in language, he has difficulty in using the syntactic cues. Many of them are as yet irrelevant to him. Much teaching effort is wasted if these cues are in a form he is unable to use.

Relationships Between Language Development, Reading Achievement and Socio-Economic Status

Table 18

Percentages of Retelling and Comprehending Scores in Oral Reading, Relative Strengths and Weaknesses in Language Development and Socio-Economic Status Levels as determined by Paternal Occupations for each of the Six Subjects

Table 18 (Cont'd.)

	Group A			Group B			Mean
	S1	S2	S3	S4	S5	S6	
Retelling Score	4	11	17	78	50	56	36
Comprehending Score	4	39	29	57	64	52	41
Reading Score Average	4	25	23	68	57	54	39
Language Development	W	W	W	A	S	A	
Socio-Economic Level	6	3	7	3	3	2	4

Two of the subjects in Group A, who had lower reading socres and exhibited more language weaknesses than the subjects in Group B, also ranked below the mean socio-economic level of the six subjects. All three of the subjects in Group B ranked above the mean socio-economic level.

Entwisle (1971) noted that socio-economic status appears to influence reading achievement to a greater degree than intelligence. She described socio-economic status as a filter which affects a-l information processing activities. She explained how Bernstein's "restricted code" of low socio-economic groups differed from the "expanded code" of higher groups in that it contained a narrower vocabulary range, simpler syntax, and a higher incidence of personal pronouns. It is less fluent, less flexible and may rely on non-verbal methods of communication, e.g. gestures and facial expressions,

to complete its message.

Loban (1963) found that the language of children from higher socio-economic levels possessed more of the criteria he had identified as being characteristic of mature language development, i.e. wider vocabulary, more fluency, logical organization, coherence through subordination, use ot tentative or conditional statements, modification, and accurate use of verb agreement and tense consistency.

He described restricted codes as containing rigidity of syntax, limited use of structural possibilities for sentence organization, and as being relatively condensed forms of language in which certain meanings are restricted, with the possibilities of their elaboration reduced.

Subject Three in this study has been shown to use a form of restricted language because of his ethnic background. Subject One may have exhibited characteristic traits of a restricted language background, or may as yet be immature in individual language development. There does appear to be a relationship in this study between socio-economic status, ability and reading achievement, in that three of the four subjects with relatively high socio-economic status have achieved better than average reading scores and exhibited more mature oral language development.

Table 19

Miscue Analysis Data compared with Language, and Socio-Economic Status Data: percentage of Miscues Corrected, Same Meaning Miscues, Comprehending Scores, Retelling Scores; Listening Comprehension Scores, Vocabulary Test Scores, Letter-Sound Correspondences Scores, Concept Development Scores; Criteria of Mature Language and Socio-Economic Status Levels compared for Groups A and B in terms of the Number of Subjects in each Group with scores above, at or below the mean.

A = Above Mean M = Mean B = Below Mean

		Group A			Group B		
Source of Data: Table:	Type of Score	A	M	B	A	M	B
2	c Miscues	0	0	3	3	0	0
2	SM Miscues	0	0	3	3	0	0
2	Comprehending Score	0	0	3	3	0	0
2	Retelling Score	0	0	3	3	0	0
9	Listening Comprehension	0	1	2	3	0	0
10	Vocabulary	0	0	3	2	1	0
11	Letter-Sound Correspondences	1	0	2	3	0	0
12	Concept Development	0	1	2	3	0	0
13B	Mature Language	0	0	3	3	0	0
18	SES	1	0	2	3	0	0
Possible Total: 30	Totals	2	2	26	29	1	0
	Totals in Percent	7	7	87	97	0	0

Table 19 compares Group A with Group B in terms of their scores related to the mean scores of both groups. The percentage totals show that Group A has seven percent of its scores at the mean, and 87 percent below the mean. Group B has 97 percent of its scores above the mean, zero percent at the mean, and zero percent below the mean. This table illustrates the extent to which language, socio-economic and reading abilities are interrelated.

Summary of Chapter Three

Miscue patterns for each of the six subjects were examined, discussed and compared. The procedures and results of the perceptual and language tests were described, examined and compared.

The results of the perceptual and language tests were compared with the results of miscue analysis. Little relationship appeared to exist between perceptual abilities as examined by the tests given, and the reading achievements of the six subjects in this study.

The usefulness of perceptual tests for the six subjects in this study, and in general, were evaluated.

Language development did appear to be related to the reading achievements of the six subjects. The importance of helping children to develop oral language competence before attempting to teach reading, or expecting reading competence, has been emphasized.

The influence of socio-economic status on language

ability and reading achievement was investigated and discussed. There did appear to be a relationship between socio-economic level, language ability and reading achievement for the six subjects in this study.

CHAPTER IV

THE SUBJECTS EXAMINED INDIVIDUALLY

For each subject, a bar graph illustrating miscue patterns is followed by detailed miscue analysis and oral language ability data.

The comparison and interpretation of these data is followed by teaching suggestions designed to improve any language or reading defecits revealed by the analysis.

Miscue Patterns: Subject Number One

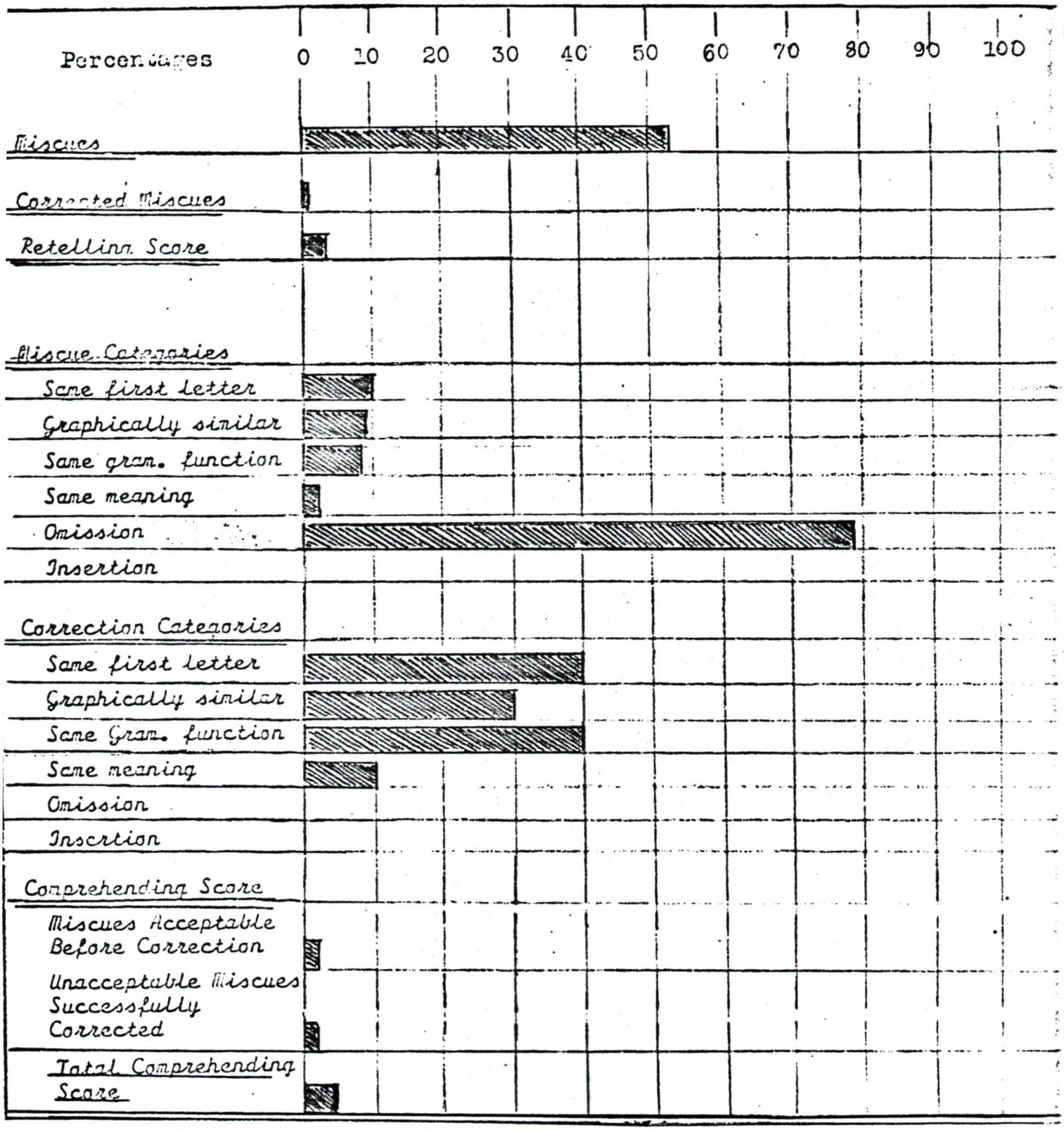


Figure 2

Miscue Data: Subject Number One

Total Number		Percentages
Words Read	1284	
Miscues	681	53
Corrected Miscues	10	1.468
Miscue Categories:		
Same First Letter	65	10
Graphically Similar	64	9
Same Grammatical Function	56	8
Same Meaning	14	2
Omission	528	78
Insertion	1	.1468
Correction Categories:		
Same First Letter	4	40
Graphically Similar	3	30
Same Grammatical Function	4	40
Same Meaning	1	10
Omission	0	0
Insertion	0	0
Number of Regressions	3	
Average Retelling Score		4

Comprehending Score:

Percentage of miscues which result in acceptable meaning before correction:	2
Percentage of miscues which had unacceptable meaning but were successfully corrected:	2
Total Comprehending Score:	4%

Subject Number One - Perceptual and Language Test Results

Visual Perception Tests

Letter Discrimination: 100%

Word Discrimination: 92%

Random Order Image Retention:	Pictures:	Maximum 4
	Letters:	Maximum 2
Sequential Order Image Retention:	Pictures:	Maximum 0
	Letters:	Maximum 2

Auditory Perception Tests

Wepman Test of Auditory Discrimination: 1 error

Random Order Auditory Memory:	Words:	Maximum 4
	Numbers:	Maximum 5
Sequential Order Auditory Memory:	Words:	Maximum 4
	Numbers:	Maximum 6

Spache Reading Diagnosis Scales Listening Comprehension Level: Grade III

Language Development Tests

Peabody Picture Vocabulary Test:	Chronological Age:	6.4
	Mental Age:	6.4
	Intelligence Quotient:	104

Webster Speech Test: 3 errors

Botel Opposites Test (Conceptual Development) Maximum Level: Grade I[2]

Letter-Sound Correspondences: 7 lower case errors
8 upper case errors

Oral Language Ability

Number of Communication Units per 100 words: 14

Number of Words per Communication Unit: 7.14

Vocabulary Range: Fair

Coherence: Fair

Oral Language Ability (Cont'd.)

Logical Organization:	Poor
Verb Agreement:	Good
Tense Consistency:	Good
Number of Subordinate Clauses per 100 words:	0
Number of Tentative Statements per 100 words:	0
Number of Uses of First Person Singular per 100 words:	0
Number of Subordinate Nouns per 100 words:	17
Number of Superordinate Nouns per 100 words:	0
Number of Overt Action Verbs per 100 words:	11
Number of Other Types of Verb per 100 words:	1
Number of Visual Adjectives per 100 words:	1
Number of Non-Visual Adjectives per 100 words:	2

Interpretation of Results

Miscue patterns. The analysis of Subject One's miscues shows a Comprehending Score of 4%, which indicates that he was using semantic cues in reading material only 4% of the time, and was missing them 96% of the time. His Retelling Score of 4% is another indication of this.

Subject One was the most immature of the six subjects, and was still at the very beginning stages of learning to read. He was still relying heavily upon a meagre supply of sight vocabulary words, and had just begun to realize that non-sight words could be sounded out. His 78% omission miscue score could indicate that he had entered what Biemiller (1970)

described as the "non-response" phase in reading development, the phase when a reader, rather than make an error when he meets a word which he does not know by sight, omits it, because he does not yet know how to decode it with phonic techniques.

The fact that he is beginning to be aware of phonic techniques is shown by the fact that of the 22% of miscues remaining after the omission miscues have been counted, 19% either start with the same first letter, or are graphically similar to the expected response.

He is also becoming aware of syntactic cues, as shown by his 8% score of miscues which have the same grammatical function as the expected response. His awareness of semantic cues has not yet developed, as indicated by his 2% score on miscues which have the same meaning as the expected response.

Suggested corrective teaching techniques. The teaching strategies for all six children are based on a total language approach. Code-breaking, whole-word and meaning-based techniques are all necessary, so that the children may learn to simultaneously apply letter-sound correspondences, develop and enlarge sight vocabularies, and use context cues. A program based on only one of these approaches would be incomplete.

A child needs to learn the letter-sound correspondences and be able to synthesize them into words because this system forms the basis of our written language, and without this

knowledge a child cannot figure out words he meets in reading which he has not pre-learned through sight recognition, or which he cannot guess at through context cues in the material.

He needs to have learned a number of words by sight recognition because there are many words in our language which do not follow the regular letter-sound correspondences he is learning, and also because there are many words which appear so frequently that a child can save himself much valuable time and effort if he does not have to stop to sound them out. Another important reason for acquiring whole-word recognition skills is that as a child analyses or breaks down a word into its component parts, and sees how the letter-sounds form it, he is able to make generalizations in his mind about word formation which help him with his synthesis of new words.

Arthur Heilman (1968) stated that it is not realistic to devote the first few months of reading instruction to only one of the three approaches while ignoring the other two, because a child will then be confused about the real nature of the reading process, and tend to over-rely on one type of reading strategy rather than being able to use all three simultaneously. It is important that the three always work together.

The reader needs to learn his sight words in context rather than in isolation. Spache (1972) advised that nouns and verbs can be taught with the aid of pictures and actions, and then practiced later without these reinforcing cues, but function words such as prepositions and pronouns can only take on meaning and learnability in relationship to other words,

and therefore should be taught and practiced in phrases or whole sentences.

Language development. Subject One needs help in many aspects of language. His general fluency in oral language is average in quantity, but immature in quality. His vocabulary range is narrow, and his poor organization of thoughts results in incoherence at times. Most of his verbs express simple overt action, and most of his nouns are concrete and subordinate in nature. He has begun to use adjectives, however, and has used two which are non-visual. He does not overuse the personal pronoun "I", so appears to have emerged from the infantile, ego-involved stage of regarding the world.

Subject One may lack language maturity because he is the eldest of two children, and may not have had opportunities to talk to many older children or to adults. He needs a great deal of practice in speaking, and in receiving feedback from people older than himself, so he may learn to make generalizations about language structure, and develop his natural language abilities.

Language development lessons could begin with outings, both with his class and with his parents, upon which he can acquire new concepts and the words to use for them. These outings should be followed by discussions which stress new ideas and new words to express them.

The use of a language development kit such as the S.R.A. Language Involvement Program (Science Research Associates, 1972)

or the Peabody Language Development Kit (1970) would be helpful, as these kits feature the planned sequential development of abilities to classify words according to their meanings, to distinguish the relationships between homonymns, synonyms and antonyms, to use descriptive and qualifying words, and to acquire new concepts and new relationships between concepts.

Subject One needs much practice in listening for meaning. The teacher could provide this by using prepared exercises such as those in S.R.A. Listening Language Labs (Science Research Associates, 1974), or the S.R.A. Language Development Program (1970). Even better, she could make her own, based on stories which will appeal to Subject One, and including the kinds of aural information processing he needs to practice most.

Improvement of Sight Vocabulary. Although Subject One must learn to use many other reading strategies, he must improve his sight vocabulary of function words which are too irregular and too frequent to read with phonic techniques, and upon which the meanings of content words depend. Although he is good at visual discrimination, his visual memory is unreliable, so these function words should be presented in such a way that they are memorable. One good method is to prepare rebus sentences which contain the necessary words, i.e. in which all but the function words to be learned are small, clearly discernable, symbolic pictures. Thus, the function words are presented in context, making them much easier to remember, but the reader does not have to puzzle

over any other words. Each function word should be presented in many contexts, to ensure the understanding of their meaning and their relationships with other words, as well as their automatic recognition. Later, when the words, are fairly well known, the sentences should be cut into phrases, so that the words must be identified without reference to the complete syntax of the sentence, but still not be completely isolated. When they are isolated on word lists or flash cards, the reader must over-rely upon their purely visual, surface graphic features, and this will slow him down as he reads. When they are seen in context, he is learning how to use syntactic and semantic cues at the same time.

Improvement of letter-sound correspondences. Subject One cannot improve his ability to decode non-sight words until he has filled in the gaps in his letter-sound symbol relationships. One good program is the Scott-Foresman (1967) Talking Alphabet Series. The child listens and repeats each sound many times as he points at pictures which contain the sound, and he reinforces this with tracing the letter with his finger as he says it.

Another method is to present a letter and sound in class, and have the child then trace it in a tray of wet sand, score it into a tablet of plasticene, form it out of plasticene strips, trace a sand-paper symbol of the letter with his finger, draw it with bright coloured felt-tip pens on sheets of plastic, print it on the chalkboard, and on paper with

crayons. He should repeat these actions while saying the sounds of letters until he can demonstrate long-term memory of each.

It is important that this letter-sound training be integrated into a total language approach to reading. If it is given undue emphasis in Subject One's program, he could become over-concerned with graphic cues and surface accuracy at the expense of the syntactic and semantic cue systems.

The anticipation of grammatical structure. The following techniques are adapted from those recommended by Burke and Goodman (1972).

Subject One needs to develop his awareness of syntactic sentence patterns so he can learn to use the syntactic cue system as a bridge to meaning. It would be helpful for his teacher to present him with oral sentences from which certain parts of speech, e.g. nouns, have been removed, and ask him to supply them verbally. At this point, syntactic acceptability should be the main focus and goal, with meaning secondary, i.e. words should be accepted as long as they have the required grammatical function. When facility with nouns has been achieved, other parts of speech, e.g. verbs, pronouns and prepositions, could be practiced. Later, these could all be combined, and perhaps extend to phrases. When Subject One shows ability in supplying syntactically acceptable words, the same procedure, still oral, could be followed, with meaning as the goal. This aptitude will have been developing along

with syntax, as the two are interrelated, but now meaning will be emphasized. After nouns have been successfully dealt with, other parts of speech should be practiced in the same manner. There should be no written forms of this exercise until Subject One has developed oral facility, and then the written forms should be kept extremely simple, with rebus symbols in place of difficult words, so that he will not become confused and unable to function.

Learning to anticipate meaning. The ability to supply appropriate words for syntax will develop naturally into the ability to supply words for appropriate meaning. Oral exercises with the focus on meaning as well as syntax will follow when the teacher notices that Subject One is supplying more and more words which are semantically as well as syntactically acceptable. Once again, the exercises will feature one part of speech at a time, and then develop from oral into written form. Later, when he is becoming more adept, she should ask for phrases as well as single words.

If these exercises are made meaningful to Subject One through their application in functional contexts, he may learn more quickly and easily. For example, instead of teacher-made sentence pattern drills of unrelated sentences, a short paragraph or story about him and his interests would probably have more impact. Sentences which lead to clues in games or treasure hunts would also be effective.

These activities can be reinforced with the use of a

Sullivan Programmed Reading Workbook (McGraw-Hill, Webster Division, 1965). These books continue the cloze type of exercises above, and contain sight words and regularly spelled vocabulary words compatible with classroom material. Subject One should be well supervised as he works in one of these books, in order to obtain its full benefit. If a child is allowed too much independence on this program, he is apt to go too quickly, skim over and miss important points, and deprive himself of learning experiences by peeking at the answers instead of figuring them out for himself.

If Subject One can learn to process syntactic and semantic cues as well as graphic cues as soon as possible, there is a good chance that he will develop effective reading strategies.

Miscue Patterns: Subject Number Two

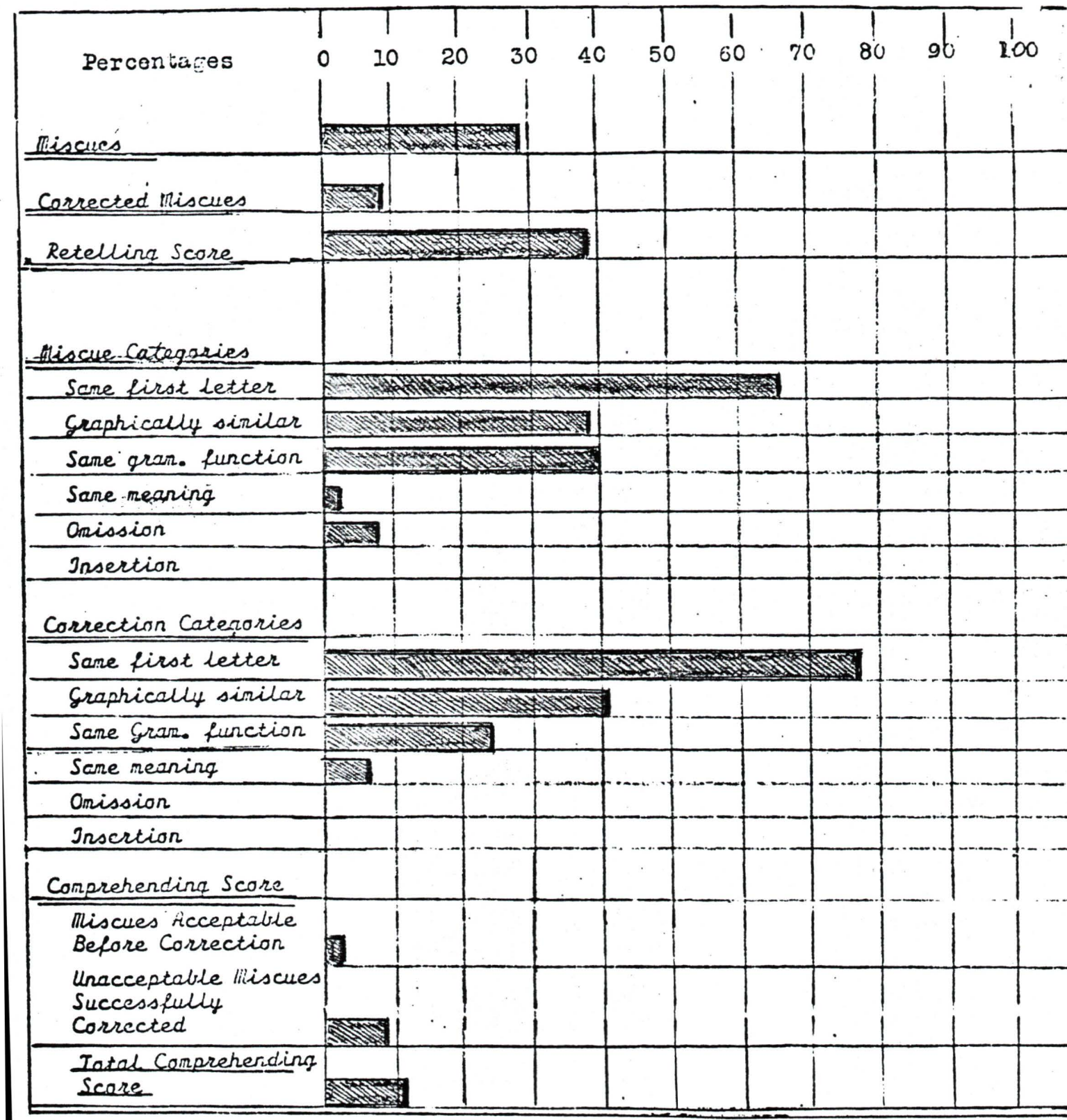


Figure 3

Miscue Data: Subject Number Two

Total Number		Percentages
Words Read	1284	
Miscues	375	29
Corrected Miscues	33	9
Miscue Categories:		
Same First Letter	287	76
Graphically Similar	147	39
Same Grammatical Function	151	40
Same Meaning	7	2
Omission	31	8
Insertion	0	0
Correction Categories:		
Same First Letter	26	77
Graphically Similar	14	41
Same Grammatical Function	8	24
Same Meaning	2	6
Omission	0	0
Insertion	0	0
Number of Regressions	2	
Average Retelling Score		39

Comprehending Score:

Percentage of miscues which result in acceptable meaning before correction:	2
Percentage of miscues which had unacceptable meaning but were successfully corrected:	2
Total Comprehending Score	11%

Subject Number Two - Perceptual and Language Test Results

Visual Perception Tests

Letter Discrimination: 90%

Word Discrimination: 77%

Random Order Image Retention:	Pictures:	Maximum 5
	Letters:	Maximum 4
Sequential Order Image Retention:	Pictures:	Maximum 3
	Letters:	Maximum 4

Auditory Perception Tests

Wepman Test of Auditory Discrimination: no errors

Random Order Auditory Memory:	Words:	Maximum 6
	Numbers:	Maximum 8
Sequential Order Auditory Memory:	Words:	Maximum 5
	Numbers:	Maximum 8

Spache Reading Diagnosis Scales Listening Comprehension Level: Grade IV

Language Development Tests

Peabody Picture Vocabulary Test:	Chronological Age:	6.6
	Mental Age:	5.10
	Intelligence Quotient:	93

Webster Speech Test: no errors

Botel Opposites Test (Conceptual Development) Maximum Level: Grade II[2]

Letter-Sound Correspondences: 3 lower case errors

Oral Language Ability

Number of Communication Units per 100 words:	15
Number of Words per Communication Unit:	6.66
Vocabulary Range:	Poor
Coherence:	Good
Logical Organization:	Good

Oral Language Ability (Cont'd.)

Verb Agreement:	Poor
Tense Consistency:	Poor
Number of Subordinate Clauses per 100 words:	0
Number of Tentative Statements per 100 words:	0
Number of Uses of First Person Singular per 100 words:	6
Number of Subordinate Nouns per 100 words:	23
Number of Superordinate Nouns per 100 words:	0
Number of Overt Action Verbs per 100 words:	11
Number of Other Types of Verb per 100 words:	4
Number of Visual Adjectives per 100 words:	2
Number of Non-Visual Adjectives per 100 words:	0

Interpretation of Results

Miscue patterns. The analysis of Subject Two's miscue patterns shows a Comprehending Score of 8%, which indicates that he was using semantic cues available in the material approximately 8% of the time, and was ignoring them approximately 92% of the time.

His syntactically acceptable miscues comprised 24% of his total miscues, indicating that approximately 76% of his reading effort was made without the use of syntactic cues.

His scores of 76% of miscues which start with the same first letter as the expected response, and 39% which are graphically similar to the expected response show that he was over-relying on graphic cues and not making use of semantic or syntactic cues, was over-concerned with word accuracy and

lacked concern about meaning.

Thus Subject Two did not use syntactic or semantic cues sufficiently, and over-used phonics. When confronted with unknown words, he tended to produce words or non-words which matched either the first letter of the spelling pattern of the unknown word, but did not fit into the grammatical structure of the sentence, or make any sense.

This unconcern with meaning is reflected in his low Retelling Score of 39%. He is missing 61% of the meaning, and needs help in learning how to use syntactic and semantic cues.

A major handicap in the use of these cues is his lack of sight vocabulary. He has not mastered enough function words to help him predict what content words might be. He tried unsuccessfully to sound out such function words as "of, for, on, into, out, with, but, so, we, his, her, and, and my".

Suggested corrective teaching procedures - Language development. Subject Two may lack adequate language models in his home environment. His restricted vocabulary, weak verb agreement and tense consistency may reflect this background. He speaks in the first person singular to a large extent, signifying a tendency to view the world in an immature, egocentric way. He has started to use some verbs other than overt action, and also some adjectives, although these are still of the visual type.

Subject Two would benefit from opportunities to enlarge

his background of experience in order to acquire new concepts and enlarge his vocabulary, as well as opportunities to enter class discussions and creative drama. He needs to be able to listen to a wider range of adult language models, and to receive feedback from them, in order to make more adequate generalizations with which to develop his own language. The use of the S.R.A. or Peabody language kits recommended for Subject One would be helpful.

Sight vocabulary function words. Subject Two demonstrated weakness in word discrimination. It would be difficult for him to learn sight words which were presented by themselves on lists or flash cards. He would be able to learn them best when they are presented in context, and because his ability to recognize words in context is still so limited, a rebus type of presentation would be helpful. If, for example, the ability to distinguish between "his" and "her" was the goal of a lesson, these words would be shown in sentences such as, "Jane pats her dog." and "John pats his cat.", in which all possible words except the function words to be taught are symbolized with easily recognized pictures. The function words should be presented in many different sentences, so that they must be recognized and practiced over and over. The sentences should then be divided into rebus phrases, so that the function words must be recognized without a subject to refer to for meaning, e.g. "her dog", "his cat", "into the bag", "out of the house", "so he ran home".

Developing Anticipation of Grammatical Structure. Subject Two's ability to predict the grammatical function of words to come, on the basis of grammatical constraints in prior context, could be developed by the use of cloze procedures. One specific grammatical feature should be selected to begin with, for example, verbs. This would be a particularly appropriate starting point for Subject Two, in the light of his weakness with verb agreement and tense consistency in oral language, because he could be improving his grasp of these as he was learning to predict verb function in sentences.

A typical exercise would be easy for the teacher to prepare. She would choose a reading selection from a reader Subject Two has read in class. She should choose a page on which the language is as close to normal speech patterns as possible, rather than mere repetitions of vocabulary words to be practiced, and which refer only to the illustration, without any independent meaning. The sentences to be used should be capable of conveying meaning independently of the illustration.

The first applications of the technique should be oral, in order to introduce it, and to utilize Subject Two's auditory strength. The teacher reads each sentence aloud, omitting the blanked out verbs. She asks him to supply a word which he thinks is suitable. If he answers incorrectly, she carefully steers him toward the correct answer with hints and suggestions which help him to think of the correct answer. As he becomes more proficient at this verbal phase of the

exercise, she models correct verb agreement and tense consistency for him, and steers him toward this in the same indirect manner that she used in helping him develop the ability to supply the verbs. Answers should be considered correct if they fit into the grammatical structure of the sentences. Meaning is secondary at this point, as the focus is kept on syntactic acceptability. Because syntax and meaning are interrelated, and dependent upon each other to a large extent, Subject Two's awareness of semantic cues will be growing during these exercises, even though the focus is on syntactic cues.

The next phase should be the transferral of the verbal technique to reading. Subject Two should read the material, which is at a level easy for him to master, and supply the blanked-out verb forms. When he has become fairly adept at this, various other parts of speech should be selected for blanking-out, so that he may develop the ability to predict the presence of nouns, adjectives, prepositions, pronouns and adverbs.

Finally, words at random may be blocked out, so that the techniques for predicting the various forms may be combined. It would be appropriate here for Subject Two to be given a Sullivan Programmed Reading Workbook to work in, under careful supervision, as the cloze procedure, similar to the above exercises, is used effectively in this program.

In the author's opinion, these workbooks are useful in several ways. They reinforce the syntactic and semantic

awareness exercises and at the same time provide sequential development of phonic skills, with opportunities for much more practice than children often get in the classroom. These phonic principles are presented with no inconsistencies at first, then gradually introduce sight words and inconsistent forms in well-planned, logical order. Reading, printing and spelling are integrated. The content is interesting, so that children are acquiring skills in a meaningful context rather than through tedious drills.

Developing anticipation of meaning. Subject Two must develop the ability to predict the meanings of words to come on the basis of prior context. The cloze type of exercises he did to help develop grammatical awareness will have helped to develop meaning awareness as well, but now they must focus on meaning. The blanked-out words are now carefully selected for the significance they hold in relation to meaning. As before, oral exercises precede reading, and the teacher helps guide correct answers through modelling and indirect suggestions. As he is being forced to look for meaning in order to fill in the blanks, he is developing an awareness of, and the ability to use, semantic cues.

The more meaningful and functional these activities are, the more quickly the skills will probably be learned. Amusing stories, comics and games could be used, rather than a series of unrelated sentences.

Subject Two often lost the thread of thought in reading material as he stopped to sound out a word, with consequent

loss of comprehension. The teacher should show him how to jump ahead to look for syntactic and semantic cues before stopping to puzzle over a word, because he might be able to supply it, or a syntactically and semantically acceptable substitute, much more quickly this way, and actually enhance his comprehension, rather than becoming so involved with surface accuracy that he loses it.

When Subject Two is reading orally, and begins to make substitution miscues which are based on graphic similarity to the text rather than on syntactic or semantic similarity, the teacher should stop him and ask, "Does that make sense?" This will give him an opportunity to go back and think about prior meaning, and re-process the syntactic and semantic cues instead of only the graphic cues. Sounding-out with phonic techniques should be used as a last resort, if these other methods do not yield a comprehensible result. It is important that Subject Two be capable in code-breaking, as he will need to use it frequently, but he must learn that it does not serve him well as a device to use without any others to support it. He must learn, rather, to use it to support the other techniques, which will then serve him more effectively.

Miscue Patterns: Subject Number Three

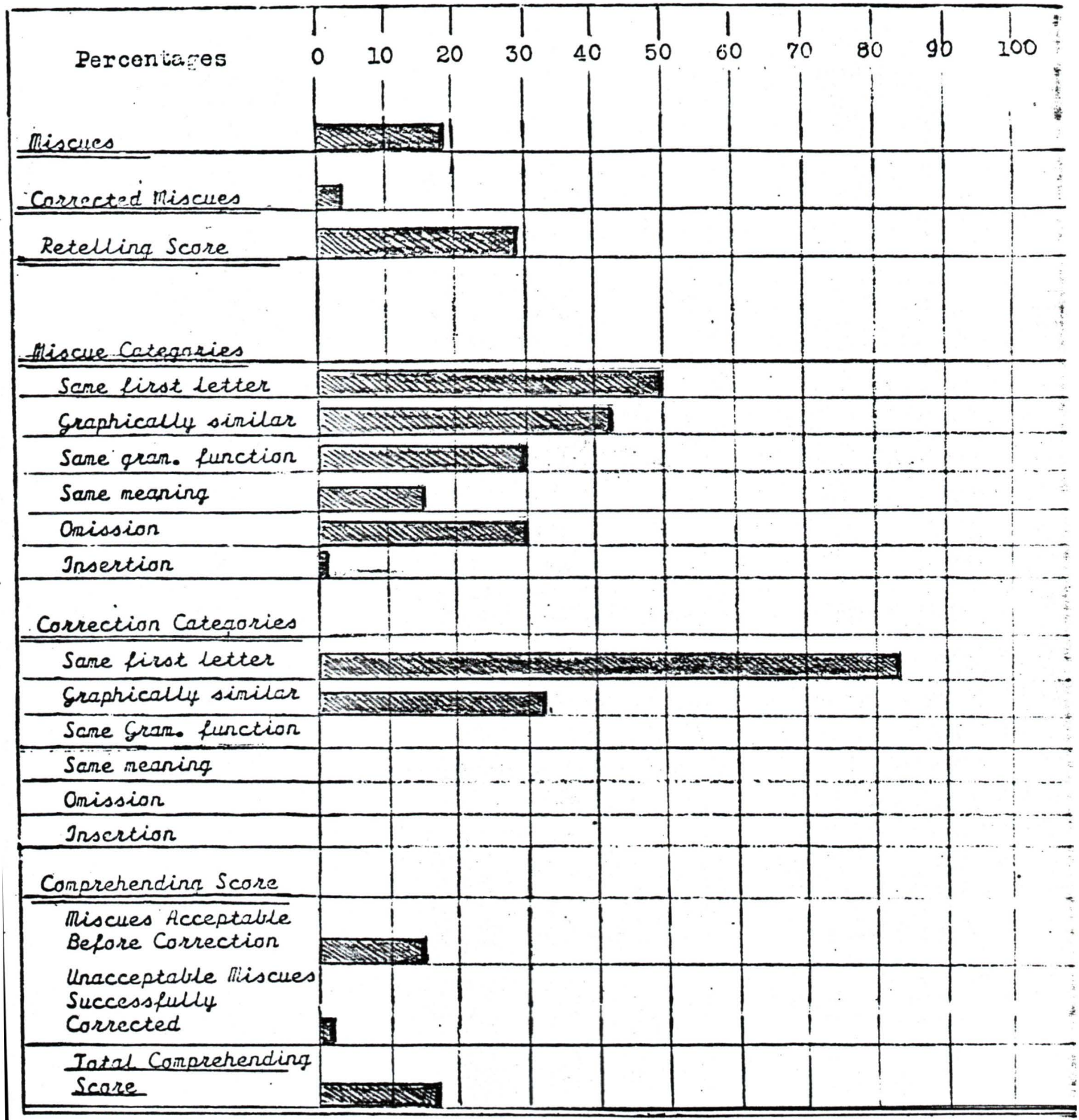


Figure 4

Miscue Data: Subject Number Three

Total Number		Percentages
Words Read	1284	
Miscues	243	19
Corrected Miscues	6	3
Miscue Categories:		
Same First Letter	121	50
Graphically Similar	102	42
Same Grammatical Function	73	30
Same Meaning	37	15
Omission	73	30
Insertion	3	1
Correction Categories:		
Same First Letter	5	83
Graphically Similar	2	33
Same Grammatical Function	0	0
Same Meaning	0	0
Omission	0	0
Insertion	0	0
Number of Regressions	1	
Average Retelling Score		29

Comprehending Score:

Percentage of miscues which result in acceptable meaning before correction:	15
Percentage of miscues which had unacceptable meaning but were successfully corrected:	2
Total Comprehending Score:	17%

Subject Number Three - Perceptual and Language Test Results

Visual Perception Tests

Letter Discrimination:	100%	
Word Discrimination:	92%	
Random Order Image Retention:	Pictures:	Maximum 4
	Letters:	Maximum 5
Sequential Order Image Retention:	Pictures:	Maximum 3
	Letters:	Maximum 5

Auditory Perception Tests

Wepman Test of Auditory Discrimination:	11 errors	
Random Order Auditory Memory:	Words:	Maximum 4
	Numbers:	Maximum 5
Sequential Order Auditory Memory:	Words:	Maximum 3
	Numbers:	Maximum 4
Spache Reading Diagnosis Scales Listening Comprehension Level:	Grade III	

Language Development Tests

Peabody Picture Vocabulary Test:	Chronological Age:	6.2
	Mental Age:	5.3
	Intelligence Quotient:	89
Webster Speech Test:		
Botel Opposites Test (Conceptual Development) Maximum Level:	Grade 0	
Letter-Sound Correspondences:	7 lower case errors	
	7 upper case errors	

Oral Language Ability

Number of Communication Units per 100 words:	62
Number of Words per Communication Unit:	1.61
Vocabulary Range:	Fair
Coherence:	Fair
Logical Organization:	Fair

Oral Language Ability (Cont'd.)

Verb Agreement:	Poor
Tense Consistency:	Fair
Number of Subordinate Clauses per 100 words:	0
Number of Tentative Statements per 100 words:	0
Number of Uses of First Person Singular per 100 words:	0
Number of Subordinate Nouns per 100 words:	43
Number of Superordinate Nouns per 100 words:	0
Number of Overt Action Verbs per 100 words:	14
Number of Other Types of Verb per 100 words:	1
Number of Visual Adjectives per 100 words:	4
Number of Non-Visual Adjectives per 100 words:	0

Interpretation of Results

Language development. Subject Three's cultural background is reflected in the language test results. He exhibited weaknesses in listening comprehension, vocabulary, concept development, oral language and letter-sound correspondences. His inability to understand or speak complex spoken standard English has had a profound effect upon his reading development. This will become more pronounced as time goes by unless counteractive measures are taken.

His oral language contained a higher number of Communication Units (Table 14) than any of the other subjects, because he did not speak in sentences. His utterances consisted of the minimum number of words with which to convey a thought, and averaged at two words per Communication Unit, as compared

to the mean of six words per Communication Unit for the other five children.

His oral language also contained a higher number of nouns and verbs than that of the other subjects, as his one or two word sentences required the listener to supply many of the other parts of speech for himself.

Miscue patterns: Subject Three's Comprehending Score, i.e. his percentage of miscues which had the same meaning as the expected response, plus the percentage which were corrected to have the same meaning, came to 17%, which indicates that he was using the semantic cue system approximately 17% of the time, and was unable to use it approximately 83% of the time. His Retelling Score of only 29% is understandable.

His 29% score of syntactically acceptable miscues indicates that approximately 71% of the time he was unable to use the syntactic cue system adequately. His 50% of same first letter and 42% of graphically similar miscues indicates that he has had to rely mainly upon the surface, graphic cue system as a reading strategy.

Subject Three did not attempt to correct any miscues which were syntactically or semantically acceptable, while correcting 83% of those which had the same first letter, and 33% of those which were graphically similar to the expected response. This could be interpreted in two ways. It could possibly indicate that he did not notice or correct miscues with adequate meaning and syntax because he was trying to focus on meaning

to the best of his ability. It could also indicate that syntactic and semantic acceptability were not significant enough in his grasp of the language to require attention.

Corrective teaching suggestions. The importance of language abilities cannot be over-stressed in reading, as it is based upon language generalizations about relationships between syntax and meaning, and upon concepts which depend upon definitions acquired through experience. A boy who has spent the all-important, formative first six years of his life in another culture in which these aspects of language are different, is severely handicapped when trying to understand standard classroom English. It is not uncommon for Native Indian children to become adept at reading the surface features of printed English, without being able to use meaning as an ongoing strategy, or to comprehend its deep structure at all.

Fortunately, Subject Three has extra tutoring daily from a patient and devoted aide. He has an enthusiastic nature, loves school, which is a happy place for him, and co-operates well with both the aide and the teacher. A disadvantage, though, is that the aide is Dutch, and speaks English with both an accent and slightly altered syntax. This could have an adverse effect upon his language progress.

Considering the nature of his limitations, Subject Three is progressing as well as possible, and always tries to do his best. A language development program for him and for the other

Native children in the classroom would be an important first step. A program developed for children with language handicaps such as the S.R.A. Listening Language Labs (1974) or their Language Development and Language Involvement (1972) Programs would be helpful. Another effective program for children from non-English cultures is the DISTAR Language Program (Osborn and Englemann, 1973).

In addition to these pre-planned programs, it is important that Subject Three be given a great deal of oral language practice in everyday situations, so that he may hear standard English syntax and vocabulary often enough to make generalizations, apply them, and receive feedback for self-correction. Classroom activities such as discussion, creative drama and group projects in which talking is encouraged would be helpful.

Subject Three's strong visual discrimination and memory have helped him to become relatively competent in the recognition of sight vocabulary function words. Counting this as a strength, an attempt could be made to determine whether he understands their meanings in relationship to content words. Rebus sentences, and later phrases, could be presented, and comprehension questions asked about them, in order to find out whether he is merely saying these words, or actually knows how to use them. If there are some whose meaning is in doubt, they should be practiced in a wide variety of rebus sentences and phrases until meaning becomes clear. This will help him to use syntactic and semantic cues, after he learns the meanings of more content words, because the function words

will clarify the relationships between the content words, and help him predict both grammatical structure and probable meaning.

Learning to anticipate grammatical structure and meaning. Close procedure exercises of the same type and in the same sequences as for Subject Two would help to develop Subject Three's ability to predict what parts of speech and what probable meanings may appear in reading context. The Sullivan Programmed Reading Workbooks (McGraw-Hill, 1965) would be appropriate for him also.

Keeping meaning in focus. As Subject Three is reading orally, his teacher could help him to keep his mind on meaning by showing him how to skip over an unknown word to look ahead for meaning so he may use it to figure the unknown word out before stopping to sound it out. She could also remind him to ask himself, when coming to a difficult place, if what he is reading sounds like real spoken language, and whether it makes sense. These techniques could help him to start to extend his focus from graphic cues alone to syntactic and semantic cues.

If Subject Three could be taught to speak in complete standard English sentences, and to reach the deep structure of written English by using all three cue systems, he might progress well, as he is highly motivated. Unless he can be helped in these ways, his motivation may slip away as it unfortunately does for so many Native Indian children, who cannot cope with standard English.

Miscue Patterns: Subject Number Four

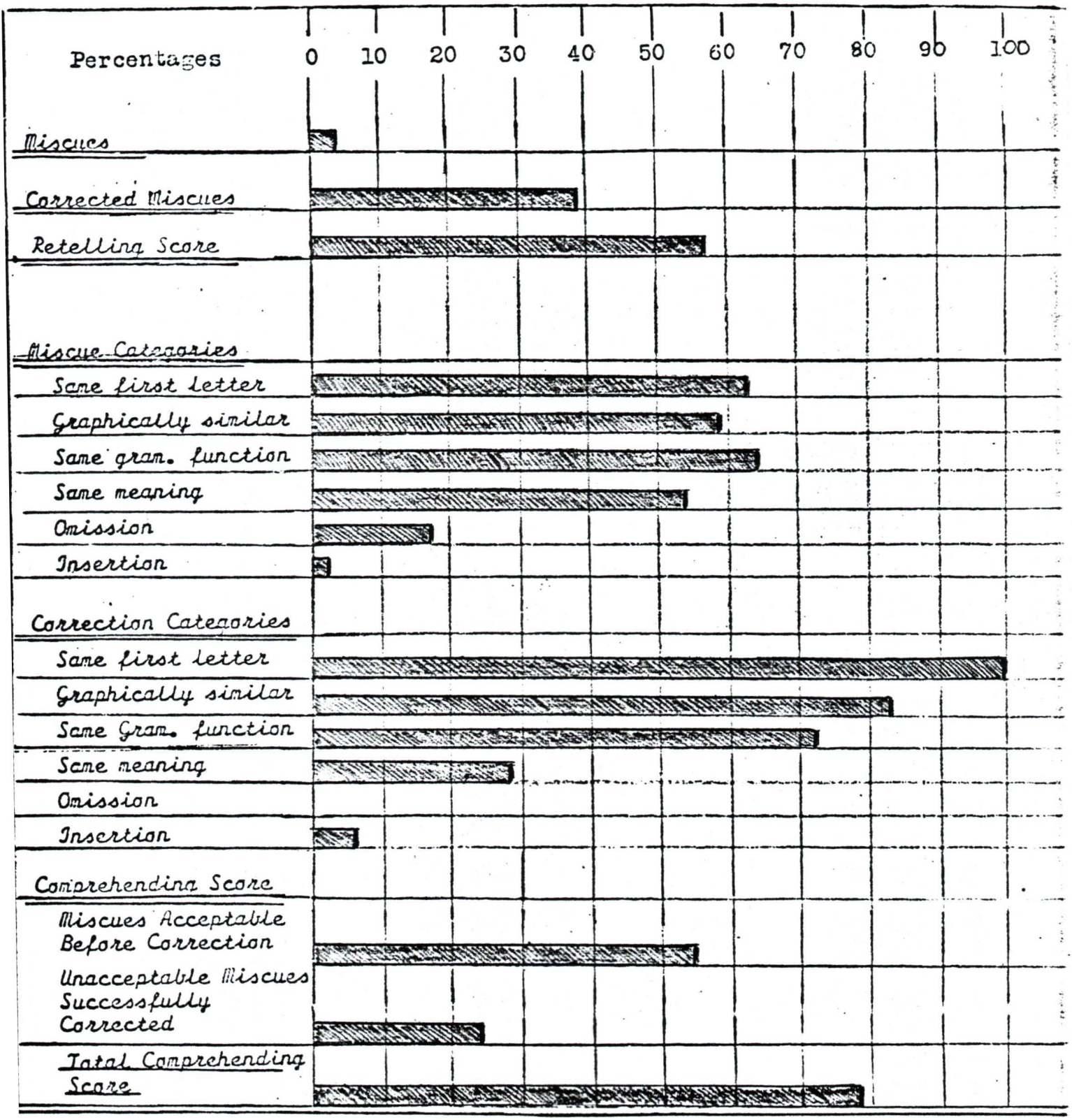


Figure 5

Miscue Data: Subject Number Four

Total Number		Percentages
Words Read	1284	
Miscues	46	4
Corrected Miscues	18	39
Miscue Categories:		
Same First Letter	29	63
Graphically Similar	27	59
Same Grammatical Function	30	65
Same Meaning	25	54
Omission	8	17
Insertion	2	4
Correction Categories:		
Same First Letter	18	100
Graphically Similar	15	83
Same Grammatical Function	13	72
Same Meaning	5	28
Omission	0	0
Insertion	1	6
Number of Regressions	3	
Average Retelling Score		57

Comprehending Score:

Percentage of miscues which result in acceptable meaning before correction:	54
Percentage of miscues which had unacceptable meaning but were successfully corrected:	24
Total Comprehending Score:	78%

Subject Number Four - Perceptual and Language Test Results

Visual Perception Tests

Letter Discrimination:	100%	
Word Discrimination:	100%	
Random Order Image Retention:	Pictures:	Maximum 4
	Letters:	Maximum 5
Sequential Order Image Retention:	Pictures:	Maximum 2
	Letters:	Maximum 4

Auditory Perception Tests

Wepman Test of Auditory Discrimination:	6 errors	
Random Order Auditory Memory:	Words:	Maximum 3
	Numbers:	Maximum 4
Sequential Order Auditory Memory:	Words:	Maximum 3
	Numbers:	Maximum 3
Spache Reading Diagnosis Scales Listening Comprehension Level:	Grade IV	

Language Development Tests

Peabody Picture Vocabulary Test:	Chronological Age:	5.11
	Mental Age:	6.6
	Intelligence Quotient:	105
Webster Speech Test:	2 errors	
Botel Opposites Test (Conceptual Development) Maximum Level:	Grade III[1]	
Letter-Sound Correspondences:		

Oral Language Ability

Number of Communication Units per 100 words:	25
Number of Words per Communication Unit:	4
Vocabulary Range:	Good
Coherence:	Good
Logical Organization:	Good

Oral Language Ability (Cont'd.)

Verb Agreement:	Good
Tense Consistency:	Good
Number of Subordinate Clauses per 100 words:	0
Number of Tentative Statements per 100 words:	0
Number of Uses of First Person Singular per 100 words:	3
Number of Subordinate Nouns per 100 words:	12
Number of Superordinate Nouns per 100 words:	0
Number of Overt Action Verbs per 100 words:	21
Number of Other Types of Verb per 100 words:	4
Number of Visual Adjectives per 100 words:	1
Number of Non-Visual Adjectives per 100 words:	1

Interpretation of Results

Miscue patterns. Subject Four's Comprehending Score shows that he was using semantic cues 78% of the time. When he was observed for this study he was not yet six years old, but had entered school with some reading skills he has acquired at home. He read all the required inventory selections with ease, and it was obvious that he could have handled more difficult material.

His miscues were distributed fairly evenly over four categories: 63% same first letter, 59% graphically similar, 65% same grammatical function, and 54% same meaning as the expected response. This indicates that he was using all three cue systems effectively. Goodman (1973) noted that a significant indication of reading proficiency is a high degree

of syntactic and semantic acceptability of miscues before correction. Subject Four exhibits this characteristic pattern.

His correction scores are also significant, in that the percentage of corrections he made on miscues which had the same meaning as the expected response was only 28%, as compared to correction percentages on the first three categories of 100, 83 and 72%. This is the characteristic correction pattern of the proficient reader, who is using meaning both as an ongoing strategy and the goal of reading. He does not stop to correct miscues which do not interfere with meaning, and often does not notice that he has made them, because he is not overly concerned with surface features. His Retelling Score of 57% places him well above the minimum for highly effective readers.

Teaching strategies. Subject Four is capable of doing well in reading on the regular program, but would benefit from activities which are designed to expand and enrich his comprehension. A wide variety of reading material should be made available to him. His teacher, when discussing stories, poems and articles he has read, would be wise to lead him into making inferences about relationships between people, facts and events, predictions about possible developments, speculations regarding the author's purpose in writing, and evaluations about the interest and worth of the material.

Subject Four's weaknesses in auditory discrimination and

articulation are possibly signs of his immaturity, as he will not be six years old until nearly the end of the school year. He could be helped to develop these more quickly, however, through classroom activities such as listening for differences in speech sounds, and reproducing them until he can do it accurately.

Miscue Patterns: Subject Number Five

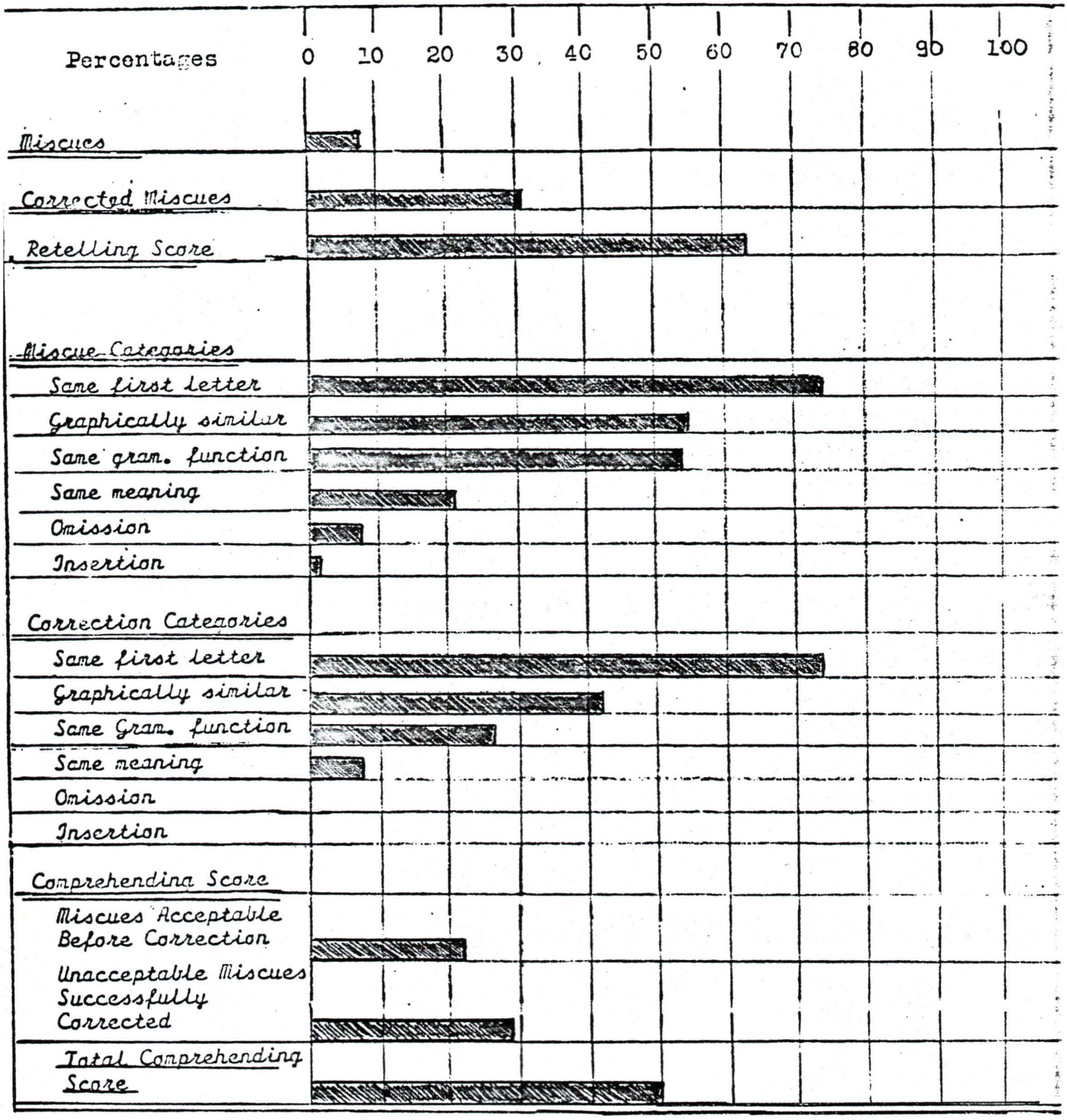


Figure 6

Miscue Data: Subject Number Five

Total Number		Percentages
Words Read	1284	
Miscues	101	8
Corrected Miscues	31	31
Miscue Categories:		
Same First Letter	75	74
Graphically Similar	55	55
Same Grammatical Function	54	54
Same Meaning	21	21
Omission	7	7
Insertion	1	1
Correction Categories:		
Same First Letter	23	74
Graphically Similar	13	42
Same Grammatical Function	8	26
Same Meaning	2	7
Omission	0	0
Insertion	0	0
Number of Regressions	6	
Average Retelling Score		64

Comprehending Score:

Percentage of miscues which result in acceptable meaning before correction:	21
Percentage of miscues which had unacceptable meaning but were successfully corrected:	29
Total Comprehending Score:	50%

Subject Number Five - Perceptual and Language Test Results

Visual Perception Tests

Letter Discrimination: 100%

Word Discrimination: 92%

Random Order Image Retention:	Pictures:	Maximum 3
	Letters:	Maximum 3
Sequential Order Image Retention:	Pictures:	Maximum 3
	Letters:	Maximum 3

Auditory Perception Tests

Wepman Test of Auditory Discrimination: no errors

Random Order Auditory Memory:	Words:	Maximum 5
	Numbers:	Maximum 5
Sequential Order Auditory Memory:	Words:	Maximum 5
	Numbers:	Maximum 5

Spache Reading Diagnosis Scales Listening Comprehension Level: Grade IV

Language Development Tests

Peabody Picture Vocabulary Test:	Chronological Age:	6.9
	Mental Age:	8.2
	Intelligence Quotient:	112

Webster Speech Test: no errors

Botel Opposites Test (Conceptual Development) Maximum Level: Grade IV

Letter-Sound Correspondences: 3 upper case errors
3 lower case errors

Oral Language Ability

Number of Communication Units per 100 words: 22

Number of Words per Communication Unit: 4.55

Vocabulary Range: Good

Coherence: Good

Logical Organization: Good

Oral Language Ability (Cont'd.)

Verb Agreement:	Good
Tense Consistency:	Good
Number of Subordinate Clauses per 100 words:	0
Number of Tentative Statements per 100 words:	1
Number of Uses of First Person Singular per 100 words:	0
Number of Subordinate Nouns per 100 words:	23
Number of Superordinate Nouns per 100 words:	1
Number of Overt Action Verbs per 100 words:	12
Number of Other Types of Verb per 100 words:	5
Number of Visual Adjectives per 100 words:	0
Number of Non-Visual Adjectives per 100 words:	0

Interpretation of Results

Miscue patterns. The quality of Subject Five's miscues is good, and his use of the three cue systems shows a fairly good balance. He is still over-relying to some extent upon graphic cues, however, as indicated by 74% of his miscues starting with the same first letter, and 55% being graphically similar to the expected response.

The fact that 54% of his miscues had the same grammatical function as the expected response indicates that he is using syntactic cues to a slightly greater extent than semantic cues, as indicated by his Comprehending Score of 50%, i.e. 21% of miscues with the same meaning as the expected response, plus 29% of miscues corrected to have acceptable meaning.

His Retelling Score of 64% indicates an effective synthesis

of reading strategies. His ability to retell what he has read accurately and coherently reflects his competence in language and conceptual ability as well as competence in reading.

His correction patterns exhibit the proficient reader's characteristic lack of concern about correcting semantically acceptable miscues, as shown by the 7% of his miscues corrected which had the same meaning as the expected response, the 26% corrected which had the same grammatical function, the 42% corrected which were graphically similar, and the 74% corrected which had the same first letter. The amount of attention paid to the correction of each type of miscue is in good proportion to its effect upon meaning.

Teaching suggestions. Subject Five is a child with above average intellectual ability, and deserves access to a wide range of reading material, plus extra attention, reinforcement and feedback from his teacher. He is progressing well in reading, and would no doubt succeed on the regular classroom program, but if it is possible for him to be included in groups playing games designed to increase visual discrimination and memory, he would benefit from them. If he became able to identify and remember graphic symbols more quickly and easily, he might then be able to spend less time processing visual cues in reading material, and pay more attention to syntactic and semantic cues, thus balancing his processing of the three systems more evenly.

Card games in which word matching and discriminating are

required would be appropriate. It would be best to use words rather than pictures or geometic shapes, as words are the specific items discrimination is needed for, and skills developed with pictures or other symbols do not necessarily transfer to reading. The best words to use would be those from daily reading vocabulary lists, so that the games are related directly to required tasks.

For the improvement of visual memory, it is also more direct and effective to work with current vocabulary words rather than with concrete objects or pictures. One helpful activity is for the teacher to print a word on the chalk board, very quickly to erase it, and then ask the children to identify it. After they have developed facility in this, she follows the same procedure with two, and then more words, gradually requiring more visual memory effort. She should accept words in random order at first, and then ask for them in sequential order, to approximate memory tasks necessary in reading. Phrases are more memorable than unrelated words, and should be used for this part of the game. Actual phrases from current reading material would be the most appropriate. Flash cards for both words and phrases would provide a change from the chalkboard, and can be used for other activities as well.

It is possible that after Subject Five has developed skill in remembering phrases acquired visually, he will be better able to predict meaning, and to rely less upon graphic cues.

As with Subjects Four and Six, he should be given oppor-

tunities to read many kinds of reading materials which will challenge his abilities and help him reach his full potential. As time progresses, he should be helped to extend his understanding of reading material to include the making of inferences, predictions and evaluations.

Miscue Patterns: Subject Number Six

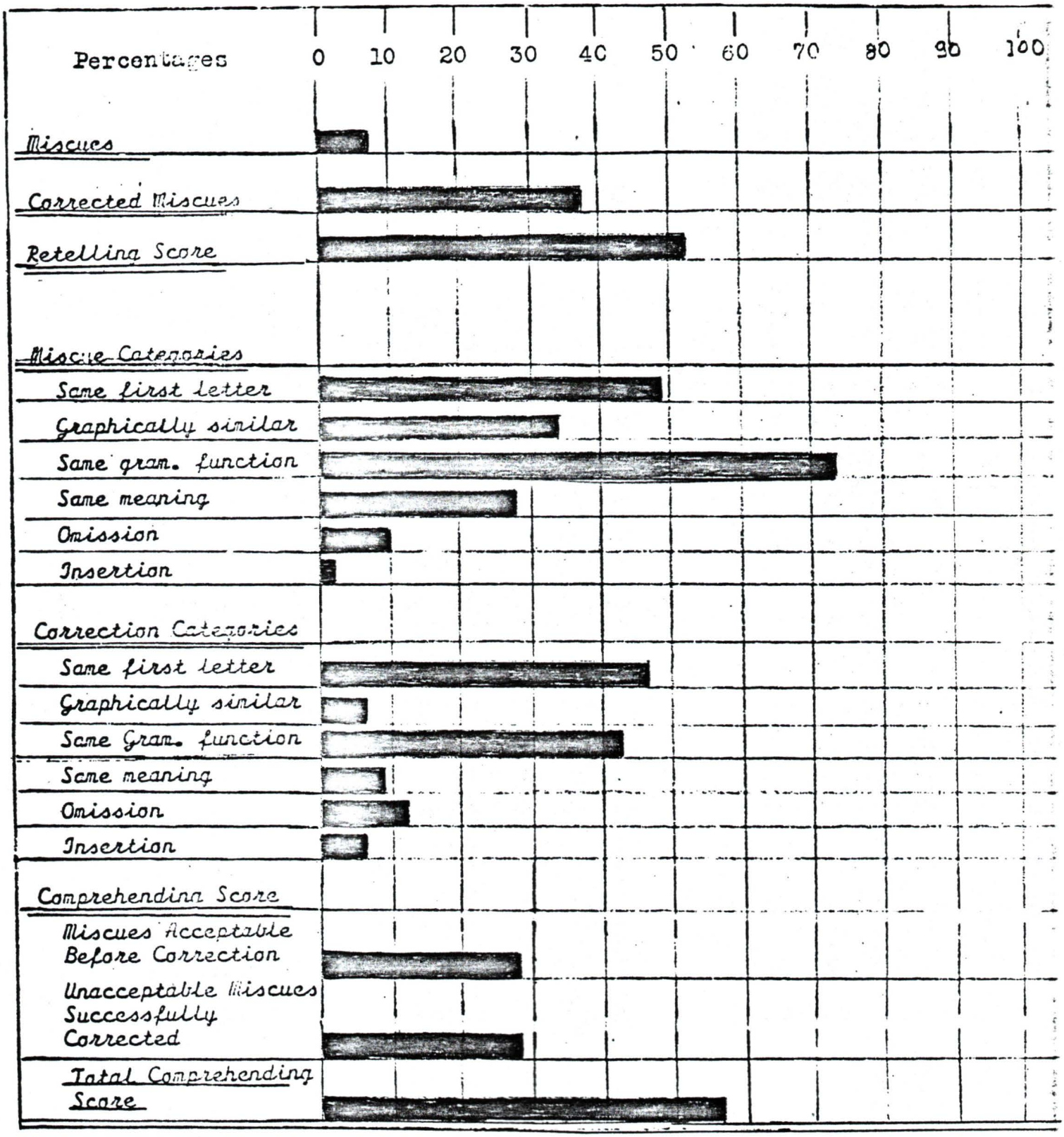


Figure 7

Miscue Data: Subject Number Six

Total Number		Percentage
Words Read	1284	
Miscues	89	7
Corrected Miscues	33	37
Miscue Categories:		
Same First Letter	44	49
Graphically Similar	30	34
Same Grammatical Function	65	73
Same Meaning	25	28
Omission	9	10
Insertion	2	2
Correction Categories:		
Same First Letter	15	46
Graphically Similar	3	9
Same Grammatical Function	14	42
Same Meaning	3	9
Omission	4	12
Insertion	2	6
Number of Regressions	7	
Average Retelling Score		52

Comprehending Score:

Percentage of miscues which result in acceptable meaning before correction:	28
Percentage of miscues which had unacceptable meaning but were successfully corrected:	28
Total Comprehending Score:	56%

Subject Number Six - Perceptual and Language Test Results

Visual Perception Tests

Letter Discrimination:	100%	
Word Discrimination:	100%	
Random Order Image Retention:	Pictures:	Maximum 4
	Letters:	Maximum 5
Sequential Order Image Retention:	Pictures:	Maximum 4
	Letters:	Maximum 5

Auditory Perception Tests

Wepman Test of Auditory Discrimination:	no errors	
Random Order Auditory Memory:	Words:	Maximum 4
	Numbers:	Maximum 6
Sequential Order Auditory Memory:	Words:	Maximum 3
	Numbers:	Maximum 6
Spache Reading Diagnosis Scales Listening Comprehension Level:	Grade V	

Language Development Tests

Peabody Picture Vocabulary Test:	Chronological Age:	6.1
	Mental Age:	8.2
	Intelligence Quotient:	125
Webster Speech Test:	no errors	
Botel Opposites Test (Conceptual Development) Maximum Level:	Grade III	
Letter-Sound Correspondences:	2 lower case errors	
	2 upper case errors	

Oral Language Ability

Number of Communication Units per 100 words:	15
Number of Words per Communication Unit:	6.66
Vocabulary Range:	Good
Coherence:	Good
Logical Organization:	Good

Oral Language Ability (Cont'd.)

Verb Agreement:	Good
Tense Consistency:	Good
Number of Subordinate Clauses per 100 words:	0
Number of Tentative Statements per 100 words:	1
Number of Uses of First Person Singular per 100 words:	7
Number of Subordinate Nouns per 100 words:	23
Number of Superordinate Nouns per 100 words:	1
Number of Overt Action Verbs per 100 words:	12
Number of Other Types of Verb per 100 words:	5
Number of Visual Adjectives per 100 words:	0
Number of Non-Visual Adjectives per 100 words:	0

Interpretation of Results

Miscue patterns. Subject Six's use of the three cue systems is fairly well balanced, with more emphasis upon syntactic cues than upon graphic or semantic cues, as indicated by 73% of miscues which have the same grammatical function as the expected response, 49% with the same first letter, 34% graphically similar, and 28% with the same meaning. Her miscues can be considered to be of high quality, i.e. they have the high degree of both syntactic and semantic acceptability which identifies the competent reader.

Her Comprehending Score, i.e. the 28% of miscues which are semantically acceptable, plus the 28% which have been corrected to become semantically acceptable, totals 56%, which indicates a continued focus on meaning.

Subject Six's correction patterns also give insight into her use of cue systems. Only 9% of semantically acceptable miscues were corrected, compared to 42% which had the same grammatical function, 46% of those with the same first letter, and 9% which were graphically similar to the expected response. Her 56% Retelling Score also shows that meaning is both a functional tool and the main goal in her reading.

Teaching suggestions. Subject Six is well endowed both perceptually and intellectually, and will no doubt do well in school whatever the program. Rather than being restricted to the pace of average students, however, she should be given access to as many varied reading materials as possible, followed up with extra attention, feedback and reinforcement from the teacher.

This should include activities designed to develop the making of inferences about the relationships between facts, events and people in stories, the prediction of future developments, and the evaluation of reading material in terms of personal opinion and the author's purpose.

CHAPTER V

SUMMARY AND CONCLUSIONS

Purpose of the Study

The purpose of this study was to compare the oral reading of three ineffective readers with that of three effective readers, through miscue analysis, in order to reveal and examine differences between their approaches, to identify specific areas in which the ineffective readers were not functioning adequately, to determine the reasons for these malfunctioning areas, and to outline teaching strategies designed to develop adequate function.

Procedure

The subjects, as selected by their classroom teacher, were placed into two groups. Group A consisted of three boys who were having difficulty learning to read. Group B consisted of two boys and a girl who were making good progress. The subjects were six years old, with the exception of one boy in Group B, who was five years, eleven months old. They were Caucasian except for one boy in Group A who was a Native Indian.

Prior to the miscue analysis, the subjects were given ten perceptual and language tests, and a detailed examination was made of their oral language, in order to screen out any subjects who exhibited disabilities severe enough to interfere with the miscue analysis, and to provide data with which to examine relationships between perceptual, language and reading abilities.

A modified form of the Burke and Goodman Reading Miscue Inventory (1972) was used for the miscue analysis of the oral reading of 24 reading inventory selections. Miscues were placed into categories to produce patterns which, when interpreted in the light of psycholinguistic reading theory, explained the differences between the reading strategies of the ineffective readers as compared to the effective readers. Reading achievement was measured in terms of comprehension, both during the reading process, and as an end result.

Data obtained from the perceptual and language tests were compared with the miscue data, to investigate relationships between perceptual, language and reading abilities.

The socio-economic status of each subject, as determined by the Minnesota Scale of Paternal Occupations (n.d.) was compared to language maturity and reading achievement, in order to examine the influence of socio-economic status on language and reading.

The reading strategies of each subject, as revealed by the miscue data, were examined in depth, and used to provide teaching suggestions designed to correct weaknesses and enhance strengths, as well as to illustrate the differences in the reading approaches of effective and ineffective readers.

Findings

Miscue Analysis

The miscue patterns of the subjects in Group A, i.e., the ineffective readers, were demonstrably different to the patterns

of the effective Group B readers. Group A miscues were less functionally valuable, and Comprehending and Retelling Scores were lower than those in Group B. It was apparent that the Group B subjects used meaning as an ongoing reading strategy, and that the Group B subjects did not, and that only the Group B subjects obtained adequate degrees of meaning as a final result of their reading.

Perceptual Tests

The five visual and auditory perception tests appeared to be only slightly related to reading achievement for the six subjects in this study. One auditory perception test, Listening Comprehension, (Spache Diagnostic Reading Scales, 1963) appeared to be more highly related to reading achievement.

Language Tests

Maturity in language development appeared to be highly related to reading achievement for the six subjects in this study.

Socio-economic Status

Socio-economic status appeared to be related to both language ability and reading achievement for the subjects in this study.

Group A Compared to Group B

Group A, taken as a whole, differed from Group B in that its scores were relatively lower in socio-economic status, language ability and reading achievement. It was similar to Group B in the performance of perceptual tasks.

Conclusions

1. Miscue analysis can reveal differences between the oral reading strategies of effective and ineffective readers, reveal specific areas in a reader's strategies which are not functioning adequately, help explain their malfunctioning, direct corrective teaching, and measure reading achievement.
2. Visual and auditory perceptual abilities did not influence reading achievement to as great an extent as did language ability in this study. Listening Comprehension, the only auditory perception task which did bear a relationship to reading achievement, is also a language task in that it requires receptive language ability.
3. Cultural differences and socio-economic status were related to reading achievement for the subjects in this study.

Implications

1. Because miscue analysis can reveal differences between the oral reading strategies of effective and ineffective readers, and also identify and explain malfunctioning areas in a reader's strategies; diagnosis, grouping, instructional techniques and measurement of reading achievement could be conducted more efficiently through miscue analysis than by present testing methods.
2. For both teachers and pupils, instructional and testing time would be more valuably spent on language tasks than on perceptual or phonics tasks.

3. Teachers should be aware that when a child is having difficulty with reading, his problem is often deeper than a mere inability to apply phonic generalizations or to memorize sight words. It may have its roots back at the language level, which, in turn, may have its roots back at the cultural or socio-economic level. Children with problems of this nature could be helped most through the use of a strong instructional emphasis on language development.
4. Teaching methods based upon psycho-linguistic reading theory would be more natural, and hence more productive, than current methods being used in the school.

Suggestions for Further Research

Follow-up Studies on the Six Subjects in this Study

Comparative studies of the oral reading of the six subjects as they progress through school could supply further information about their developing reading strategies. During the 1975-76 school year, when they are in Grade Two, the author of this study will be able to implement the teaching suggestions outlined for each of the three subjects in Group A as part of a learning assistance program, and plans to conduct a second miscue analysis study for all six subjects.

The aims of this proposed study would be:

1) to note developmental patterns of miscue occurrance in the oral reading of the six subjects as they progress through Grade Two;
2) to continue to compare the reading strategies and comprehension levels of the subjects in Group A with the subjects in Group B;
3) to gather information about the influences of the suggested teaching techniques on the reading achievements of the three Group A subjects;
4) to develop further teaching techniques which might help the Group A subjects improve their reading, and which might be appropriate to use with other children who have similar problems.

It would be beneficial to continue this study through as many grades as possible, in order to gather data on a long-term

basis, which might provide, through miscue analysis, greater insights into the development and improvement of reading strategies.

Native Indian Language Studies

Further investigation into Native Indian children's abilities to cope with standard English oral and written language would help teachers understand the problems the children are trying to cope with. Miscue analyses of the oral reading of Indian children from Grade One right up to Grade Twelve, or the highest grade in which Indian students are available to study, would give a picture of the degree to which these children are able to use syntactic and semantic cue systems in addition to the graphic system.

Comparative studies of the miscues or Indian and White children whose surface accuracy in oral reading may be similar, but whose comprehension scores are different, might reveal significant differences in quality of miscue. These studies, if done from Grade One upward, might show how the gap between the performance and comprehension widens each year for the Indian children, as compared to the White children.

It might be possible to use the results of these studies to devise some means of helping Indian children to grasp standard English syntax and meaning sooner and more effectively.

The Development of a Simple, Easily Administered Form of Miscue Analysis

Miscue Analysis, as conducted by Burke and Goodman in the

Miscue Inventory Kit (1972) is, in the opinion of the author, too complicated and time consuming for general use.

The type of miscue analysis used in this study is a simpler version of the above procedure. Using this as a starting point, it would be beneficial to develop a kit suitable for the use of classroom and learning assistance teachers, reading consultants, clinicians and supervisors, so that their criteria for the diagnosis, instructional grouping, teaching methods and evaluation of achievement would be based on a clearer understanding of actual reading dynamics than the criteria presently in use.

A simplified kit would also be useful for use in both undergraduate and graduate university education courses. It could be presented along with a training course on miscue analysis and psycholinguistic reading theory, whereas the presentation of the original kit would take a disproportionate amount of course time.

Insights gained through the miscue analysis of oral reading are so revealing, and the benefits to reading education potentially so great, that efforts should be made to make the technique available to as many educators as possible.

APPENDIX A

The twenty-four reading inventory selections used for oral reading in this study.

Twenty-Four Reading Inventory Selections

1. Gilmore Reading Inventory: 1A
2. Gilmore Reading Inventory: 1B
3. Durrell Reading Inventory: 1A
4. Durrell Reading Inventory: 1B
5. Three of Us: Pre-Primer 1
6. Three of Us: Pre-Primer 1
7. Play with Us: Pre-Primer 2
8. Play with Us: Pre-Primer 2
9. Spache Reading Diagnosis Scales: 1A
10. Spache Reading Diagnosis Scales: 1B
11. Unidentified Inventory: Gr. 1.5
12. Unidentified Inventory: Gr. 1.5
13. Gray Reading Inventory: 1A
14. Gray Reading Inventory: 1B
15. Primer: Safran Readability Formula Gr. 1.5
16. Story Time: Grade 1 Reader
17. Primer: Safran Readability Formula Gr. 1.6
18. Happy Times: First Reader
19. Happy Times: First Reader
20. Grade 1 Reader: Safran Readability Formula Gr. 1.8
21. Grade 1 Reader: Safran Readability Formula Gr. 2.0
22. Many Surprises: Primer: Safran Readability Formula Gr. 1.8
23. Many Surprises: Primer: Safran Readability Formula Gr. 1.8.
24. Grade 2 Reader: Safran Readability Formula Gr. 2.6

1 24 Words

The girl has a cat.

The girl is Mary.

That cat is Puff.

Puff is gray.

Father is in the yard.

Father words hard.

2 20 Words

I can see Bob.

Spot is his dog.

Bob has a sister.

She is Jane.

Bob and Jane like pets.

3 21 Words

Muff is a little yellow kitten.

She drinks milk.

She sleeps on a chair.

She does not like to get wet.

4 24 Words

Jack made a house.

He made it out of a box.

He put a flag on top.

The flag is red, white and blue.

5 37 Words

Ann can see Jane.

Ann wants to play with Jane. Come, Jane.

Come and play. Come and play with me.

Jane and Anne play. Jane sees Skip.

Look, Ann. Skip can play. Run, Skip.

Run with Ann.

6 35 Words

Billy sees Rex. Come, Rex.

See Jane ride. Rex comes to play.

Rex looks at Jane. Rex wants to ride.

Stop, Jane. See Rex. Rex wants to ride.

Rex can ride. Come and ride, Rex.

7 46 Words

Ann came to play.

Come here, Ann, said Jane. See me jump.

I like to jump. Come and jump with me.

Jump, Ann, jump. Ann saw Judy.

Look at Judy, said Ann. May Judy jump with me?

Jane said, Judy can not jump. You can jump.

8 48 Words

Ann saw Billy. Ann ran to Billy.
Come and play, said Ann. I want to play with you. Billy said, I can not play. Go and play with Jane. Ann said, I want to play here. See me play with the airplane. Come and play with me, Billy.

9 29 Words

Mary was on her way to school.
She came to the corner.
She saw a red light.
Then she saw the green light.
Then she went on to school.

10 35 Words

Bob had a dog.
The dog's name was Spot.
Spot had a big brown spot on his back.
Bob and Spot played together.
Bob threw a stick.
Spot ran after it.
They had fun together.

11 38 Words

A boy had a horse. The boy went to school.
The horse wanted to go, too. The boy
said, you cannot go. The horse would not
stay at home. He looked in the window.
All the children laughed.

12 40 Words

A dog saw a cat. The dog said, I can catch you.
The cat said, we shall see.
The cat ran. The dog ran after her.
The cat ran up a tree. The cat said,
Catch me if you can.

13 48 Words

A boy had a dog.
The dog ran into the woods.
The boy ran after the dog.
He wanted the dog to go home.
But the dog would not go home.
The little boy said,
I cannot go home without my dog.
Then the boy began to cry.

14 49 Words

Once there was a little pig.
He lived with his mother in a pen.
One day he saw his four feet.
Mother, he daid, what can I do with my feet?
His mother said, You can run with them.
So the little pig ran round and round the pen.

15 81 Words

Mary had a black cat.
Her name was Blackie.
One day, Mary looked for Blackie.
She looked under the table.
"Come, Blackie," she called.
"Come, Blackie, come!
Where is my black cat today?"
"Meow! Meow! said Blackie.
"Here is Blackie!" said Mary.
"Here she is in her basket.
Oh, Mother! Mother!
Come and see what is in the basket," said Mary
Mother came to look in the basket.
"Blackie has three little kittens," said Mary
"Oh, Blackie, they are so pretty."

16 82 Words

The red bus stopped at the corner.
A man got off and an elephant got on.
The bus man looked at the elephant and
said "Stop there. Stop now. You can't
ride on my bus."
The elephant said, "But I must. I must
get back to the zoo for dinner. I have
some money." And he put out his trunk
with money in it.
The bus man said, "But...but...you can't.
You can't ride on my bus. You are too big."

17 94 Words

Tom was at the dinner table. Oh, Father, he
said. Today I saw a little dog. His name is
Spot. He can sit up and he can roll over,
too. Someone came to the door. Sniff, sniff,
sniff, went someone. Oh, said Mother. There
is someone at the door. Someone wants to come
in. Open the door, Tom. Tom ran to the door.
He opened the door. There was a little dog.
It was Spot. The little dog ran into the
house. Here is Spot, said Tom. Oh, Father,
here is that little dog.

18 56 Words

There was a new house near the woods. It was a pretty white house. Many apple trees were near it. A new neighbour lived in the white house. His name was Will Long. One morning Will put apples into a big basket. He put the basket into his car. Then away he went in the car.

19 55 Words

The bears saw the new house. The saw the car go away. They went near the house. One bear saw some white stones. He got a stone in his paws. The other bear was looking into some water. Up went the white stone. Splash it went into the water. It made the brown bear jump.

20 101 Words

"We ride on the bus!
We like to ride on the bus!
We are going to the park
and we are going to ride on the bus!"
That is what Mary and Tom said.
Father said, "Come, let us go!"
Then they went to the park.
"Oh, Father!" cried Tom.

20 101 Words (Cont'd.)

"May we ride the ponies?"
One, two, three, four, five!
Father gave Tom five cents.
He gave Mary five cents, too.
That made ten cents.
The children got on their ponies.
"Get up!" cried Tom.
And away his pony went.
Mary said, "Run fast."
And away she went on her pony.

21 94 Words

Mother Bunny lives on the farm.
Baby Bunny lives with her.
Their home is in a hole. It is in the ground.
One day Mother Bunny said,
"I am going out for some food.
Be good, little Bunny.
Don't go into the garden.
Stay here in your home.
I'll be back soon."
Then off she went with a hop!
Baby bunny sat very still.
He waited.
He waited for his mother.

21 94 Words (Cont'd.)

But she did not come back for a long, long, time. "I am going to look around," said Baby Bunny. And off he started with a hop.

22 60 Words

Come, Clip-Clop, said the man. We have work to do. Here is some wood. We will take it to my house. The man had some baskets. He put them on the donkey. Then the man got some wood. He put it into the baskets. There! said the man. We are ready to go. Take the wood to my house.

23 53 Words

The little donkey heard what the man said. Clip-Clop did not want to work. He wanted to play with Candy. He did not want to take wood to the house. He did not like the baskets of wood. He made the wood fall. Out of the baskets it came. Down it went.

24 105 Words

There was a little boy named Billy. He lived on a farm near Mary. He lived with his father and his mother. Billy was a little older then Mary. They were good friends. They saw each other in school every day.

Billy was a real farm boy. He milked the cows. He took care of the horses. Billy liked horses very much.

One day, Billy and his mother and his father came to Mary's house. Billy's father said, "We must drive to the city. We will go tomorrow. We shall have to stay a long time. But we do not like to take Billy out of school."

APPENDIX B

Copies of Perceptual and Language Tests

I Visual Perception

A. Informal test of Letter-Discrimination

B. Informal test of Word-Discrimination

C. Informal test of Memory

II Auditory Perception

A. The Wepman Test of Auditory Discrimination

B. Informal test of Word Memory

ITPA Sub-test of Digit Memory

C. Spache Diagnostic Reading Scales (Listening Comprehension)

III Language Development

A. Peabody Picture Vocabulary Test

B. Webster Speech Test (Articulation)

C. Botel Opposites Test (Concept Development)

D. Informal test of Letter-Sound Correspondences.

Letter-Discrimination

(The original tests were printed in large letters on 5 x 8" cards)

t	f	f	t	f	
a	o	o	a	o	o
c	e	c	e	e	e
l	t	l	t	t	t
m	n	n	n	m	n
b	d	b	d	d	d
g	q	q	g	q	q
r	n	n	n	r	n
s	z	z	s	z	z
p	q	p	q	q	q
B	D	D	D	D	B
E	F	F	E	F	F
C	G	C	G	G	G
D	B	D	B	B	B
F	E	E	E	F	E
O	Q	Q	O	Q	Q
P	R	R	R	P	R
S	Z	S	Z	Z	Z
G	O	O	G	O	O
W	V	W	V	V	V

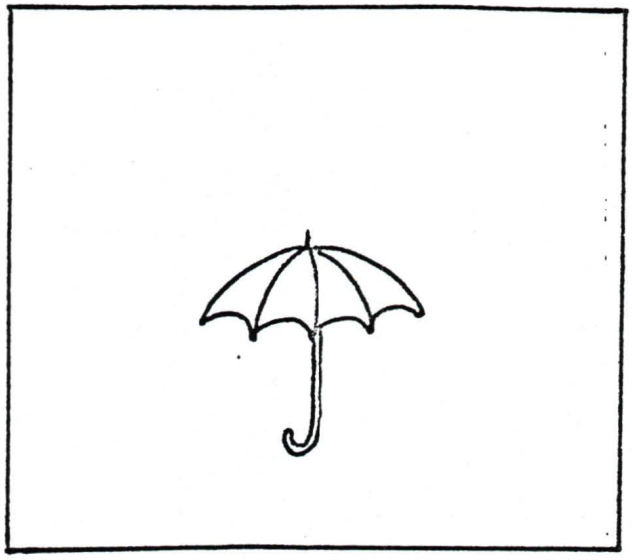
Word Discrimination

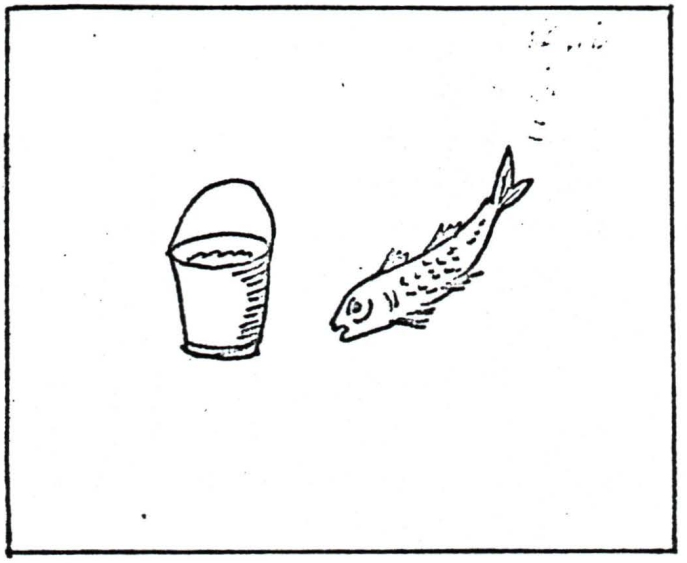
(The original tests were printed in large letters on 5 x 8" cards)

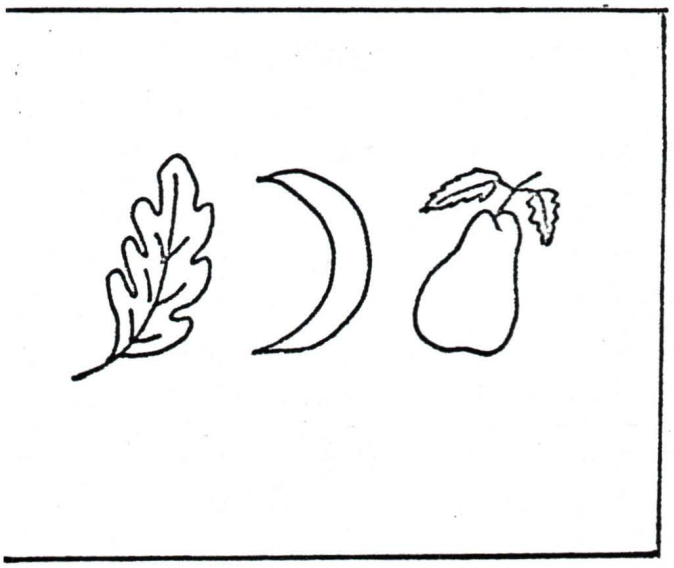
man	map	mat	mad	man	
cut	cup	cut	cub	cat	
hat	had	ham	hit	hat	hot
fun	fin	fat	fur	fun	fan
sub	sup	sub	sud	sid	sum
not	nut	nod	nat	not	nip
pan	pal	pan	pat	pun	pin
sat	sat	set	sit	sam	sag
rip	rap	rim	rip	rid	rib
tap	tam	tag	tan	tab	tap
dog	dig	dog	dug	dot	don
his	him	hit	has	his	hip

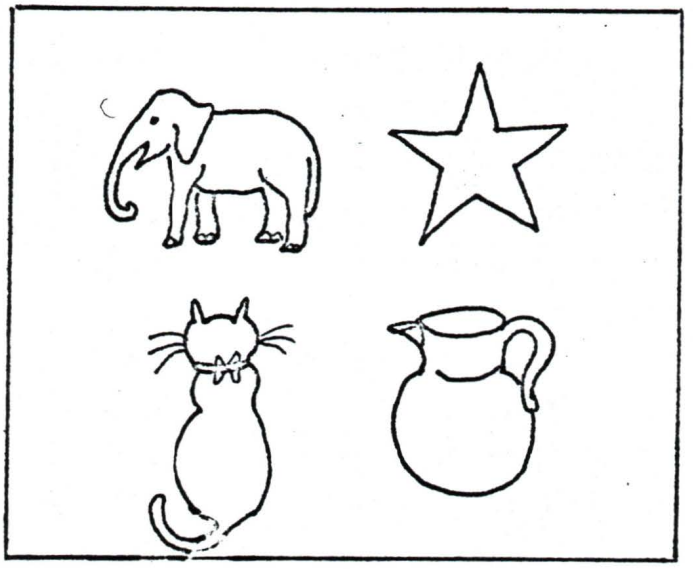
Visual Memory: Pictures

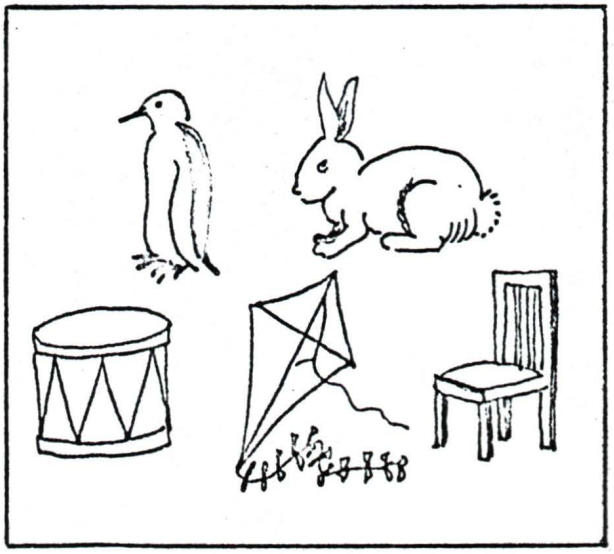
(The original pictures were larger, and were arranged on six 5 x 8" cards)

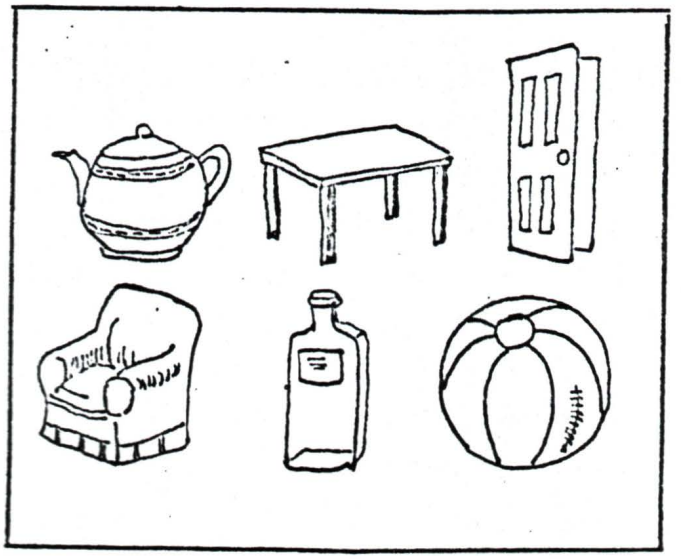












Visual Memory: Letters

(The original letters were printed in large letters on 5 x 8" cards)

B	R S
T M A	C O J F
K P B M G	S J R B H C

AUDITORY DISCRIMINATION TEST

FORM I

1.	tub	- tug			21.	cat	- cap	
2.	lack	- lack			22.	din	- bin	
3.	web	- wed			23.	lath	- lash	
4.	leg	- led			24.	bum	- bomb	
5.	chap	- chap			25.	clothe	- clove	
6.	gum	- dumb			26.	moon	- noon	
7.	bale	- gale			27.	shack	- sack	
8.	sought	- fought			28.	sheaf	- sheath	
9.	vow	- thou			29.	king	- king	
10.	shake	- shape			30.	badge	- badge	
11.	zest	- zest			31.	pork	- cork	
12.	wretch	- wretch			32.	fie	- thigh	
13.	thread	- shred			33.	shoal	- shawl	
14.	jam	- jam			34.	tall	- tall	
15.	bass	- bath			35.	par	- par	
16.	tin	- pin			36.	pat	- pet	
17.	pat	- pack			37.	muff	- muss	
18.	dim	- din			38.	pose	- pose	
19.	coast	- toast			39.	lease	- leash	
20.	thimble	- symbol			40.	pen	- pin	

X more than 15 or Y more than 3 - invalid

Cut-off scores

5 yrs:	X errors greater than 6		
6 yrs:	X " " " 5		
7 yrs:	X " " " 4		
8 yrs. or older:	X " " " 3		

X	Y	
30	10	Error Score

Word Memory

These lists were read aloud by the examiner

1	2	3	4	5	6
butterfly	frog	bat	cow	owl	man
	warm	spider	horse	robin	woman
		bee	dog	eagle	boy
			elephant	duck	girl
				swan	father

Digit Memory: Adapted from the ITPA Subtest of Auditory Sequential Memory

2. 9 - 1
   7 - 9

3. 8 - 1 - 1
   6 - 4 - 9
   5 - 2 - 8

4. 2 - 7 - 3 - 3
   6 - 3 - 5 - 1
   8 - 2 - 9 - 3
   1 - 6 - 8 - 5

5. 4 - 7 - 3 - 9 - 9
   6 - 1 - 4 - 2 - 8
   1 - 5 - 2 - 9 - 6
   7 - 3 - 1 - 8 - 4
   5 - 9 - 6 - 2 - 7

6. 7 - 4 - 8 - 3 - 5 - 5
   2 - 9 - 6 - 1 - 8 - 3
   5 - 2 - 4 - 9 - 3 - 6
   4 - 7 - 3 - 8 - 1 - 5
   6 - 9 - 5 - 7 - 2 - 8

7. 3 - 6 - 1 - 9 - 2 - 7 - 7
   5 - 3 - 6 - 9 - 7 - 8 - 2
   8 - 1 - 6 - 2 - 5 - 9 - 3
   2 - 7 - 4 - 1 - 8 - 3 - 6
   4 - 9 - 6 - 3 - 5 - 7 - 1

8. 3 - 1 - 9 - 2 - 7 - 4 - 8 - 8
   9 - 6 - 3 - 8 - 5 - 1 - 7 - 2
   4 - 7 - 3 - 1 - 6 - 2 - 9 - 5
   8 - 2 - 5 - 9 - 3 - 6 - 4 - 1

Spache Reading Diagnostic Scales

Grade I

A boy had a dog.

He wanted to feed the dog.

He put some meat outside, but the dog did not come.

Another dog came along and took the meat.

Then the boy's dog came home, but it was too late.

Grade II

Bob has a little red wagon.

He likes to ride in it.

He pulls it slowly up the hill.

Then he rides is quickly down again.

One day he took his dog with him.

He pulled the dog up the hill.

Then they rode down the hill.

But the dog did not like to ride down.

He jumped out of the red wagon.

Bob went down by himself.

Now he does not try to take his dog in the wagon.

Grade III

Bob has a brown and white dog named Freckles. He is called Freckles because he has brown spots on his nose. Bob always takes Freckles on his trips to the woods. Freckles helps to scare up the rabbits. Bob walks slowly, but Freckles scampers through the leaves.

One day Freckles left Bob and went off by himself. Bob called and whistled, but Freckles did not come back to him. After a while Bob heard Freckles barking a long way off. Bob walked toward the sound of the barking until he found Freckles. Freckles thought he had caught a black and white kitten. But it wasn't a kitten, it was a skunk. That night Freckles had to sleep outside.

Grade IV

Yesterday Bob took a trip to a city market that was somewhat like a store but a great deal bigger. It didn't have any bread or canned goods like the grocery stores. But there were a great many big boxes of vegetables and fruits.

Bob was hungry and wanted just one plum or cherry to taste. He wondered if one of the men would sell him just one plum. Everyone was buying the fruit and vegetables by the whole crate. When Bob asked

the man to sell him one plum, he laughed and gave Bob an extra large plum wrapped in paper but wouldn't take any money.

As he walked along eating the plum, Bob watched the men unloading the trucks and big trailers. They would chop open the top of the crate so that anyone could see the fruit. If a buyer liked the fruit, and was willing to pay the price, he might buy the entire truckload.

Grade V

As a ship's boy, John Paul had all sorts of odd jobs on board. Sometimes he scrubbed decks or helped the cook. He cleaned the captain's cabin and ran errands, but he had other duties that pleased him more. He helped to clean the guns, which the merchant ship carried for protection. And several times he stood behind the big wheel to steer the ship.

Captain Benson wrote in the ship's log, or daily record, that the trip was calm and smooth-sailing. Nothing unusual happened, but every day was real adventure for the new ship's boy. At the end of the voyage it was a thrill to sight land. When the ship docked near Fredericksburg, Virginia, John Paul was waiting to go on shore.

Grade V (Cont'd.)

John Paul's brother had a tailor shop in Fredericksburg and was very happy in his new home. He was eager to talk about the wonderful country, but John Paul already loved America. During the next few years John Paul visited America often. He became used to the free and democratic ways of the new country. Meanwhile he had learned to be an expert sailor. Although he was not tall, he was strong and quick. With his long arms he could haul or trim a sail with the best of men.

PREVIOUSLY COPYRIGHTED MATERIAL,

IN APPENDIX B,

NOT MICROFILMED.

(Leaves 178 and 179.)

(Peabody Picture Vocabulary Test,
Form B, Individual Test Record,
American Guidance Service Inc.,
Publishers' Building, Circle
Pines, Minnesota 55014, U.S.A.)

FORM B

PEABODY PICTURE VOCABULARY TEST

INDIVIDUAL TEST RECORD

NAME _____ SEX: M F GRADE _____
(Last) (First) (Initial) (circle)

SCHOOL _____ TEACHER _____
(or address) (or parent or phone)

CALCULATION		DERIVED SCORES	YEAR	MONTH	DAY
Ceiling item	_____	Mental Age (M. A.) _____	Date _____	_____	_____
Errors	_____	Intelligence quotient (I.Q.) _____	Born _____	_____	_____
Raw score	_____	Percentile (%ile) _____	Age _____	_____	

EXAMINER _____ TIME _____ CODE _____

JAN. 1 FEB. 2 MARCH 3 APRIL 4 MAY 5 JUNE 6 JULY 7 AUG. 8 SEPT. 9 OCT. 10 NOV. 11 DEC. 12

TEST BEHAVIOR

Examples needed:	____only 1	____2 or 3	____over 3
Type of response:	____Subject pointed	____S. called numbers	____Examiner pointed
Rapport:	____easily attained	____slowly attained	____poor rapport
Guessing:	____prone to guess	____guessed when asked	____resisted guessing
Speed of response:	____fast	____average	____slow
Verbalization:	____talkative	____average	____taciturn
Attention span:	____distractible	____average	____very attentive
Perseveration:	____none noted	____some	____frequent
Need for praise:	____little needed	____some needed	____much needed

Other test behavior:

PHYSICAL CHARACTERISTICS

Motor activity:	____hyperactive	____average	____hypoactive
Sedation:	____none	____slight	____heavy
Ambulation:	____normal	____walks with support	____none
Speech:	____intelligible	____fairly intelligible	____unintelligible
Hearing: necessity to repeat stimulus words	____never ____S. wore hearing aid	____seldom ____S. watched examiner's lips and face closely	____often
Vision: distance of eyes from page	____under 8" ____S. wore glasses	____average (8"-20") ____S. owned but did not wear glasses during test.	____over 20"

Other physical characteristics:

OTHER INFORMATION (previous tests, dates, scores etc.; teacher estimates of vocabulary, intelligence, achievement; school or work record)

NAME ____________________

Item	Resp.	Key	Word
1		(2)	table
2		(4)	bus
3		(2)	horse
4		(3)	dog
5		(4)	shoe
6		(4)	finger
7		(3)	boat
8		(2)	children
9		(1)	bell
10		(4)	turtle
11		(2)	climbing
12		(1)	lamp
13		(3)	sitting
14		(2)	jacket
15		(1)	pulling
16		(2)	ring
17		(1)	nail
18		(2)	hitting
19		(3)	tire
20		(3)	ladder
21		(1)	snake
22		(1)	river
23		(4)	ringing
24		(4)	baking
25		(2)	cone
26		(3)	engineer
27		(4)	peeking
28		(1)	kite
29		(1)	rat
30		(1)	time
31		(4)	sail
32		(2)	ambulance
33		(2)	trunk
34		(4)	skiing
35		(2)	hook
36		(1)	tweezers
37		(3)	wasp
38		(2)	barber
39		(3)	parachute
40		(4)	saddle
41		(3)	temperature
42		(1)	captain
43		(2)	whale
44		(4)	cash
45		(1)	balancing
46		(3)	cobweb
47		(3)	pledging
48		(1)	argument
49		(3)	hydrant
51		(1)	locomotive
52		(2)	hive
53		(4)	reel
54		(1)	insect
55		(1)	gnawing
56		(2)	weapon
57		(3)	bannister
58		(1)	idol
59		(1)	globe
60		(3)	walrus
61		(1)	filing
62		(3)	shears
63		(1)	horror
64		(4)	chef
65		(4)	harvesting
66		(3)	construction
67		(4)	observatory
68		(4)	assistance
69		(2)	erecting
70		(3)	thoroughbred
71		(2)	casserole
72		(4)	ornament
73		(3)	cobbler
74		(2)	autumn
75		(3)	dissatisfaction
76		(4)	scholar
77		(1)	oasis
78		(3)	soldering
79		(3)	astonishment
80		(1)	tread
81		(2)	thatched
82		(1)	jurisprudence
83		(2)	sapling
84		(3)	arch
85		(4)	dwelling
86		(1)	lubricating
87		(2)	pedestrian
88		(3)	vale
89		(3)	jubilant
90		(2)	laden
91		(2)	pursuit
92		(4)	goblet
93		(2)	rodent
94		(3)	confiding
95		(4)	reclining
96		(1)	frisking
97		(2)	moat
98		(3)	salutation
99		(2)	barrier
101		(4)	incandescent
102		(3)	cornucopia
103		(2)	ascending
104		(1)	summit
105		(3)	caster
106		(2)	lobe
107		(3)	patriarch
108		(3)	sampler
109		(3)	ingenious
110		(1)	repose
111		(3)	constrain
112		(1)	tangent
113		(4)	sconce
114		(4)	hoary
115		(1)	pendant
116		(1)	prodigy
117		(2)	casement
118		(1)	quiescent
119		(4)	talon
120		(1)	chevron
121		(4)	feline
122		(2)	cairn
123		(4)	convergence
124		(3)	apothecary
125		(2)	indigent
126		(4)	edifice
127		(3)	scallion
128		(1)	infirm
129		(1)	emaciate
130		(2)	catapult
131		(2)	arable
132		(4)	orifice
133		(3)	renovate
134		(1)	precarious
135		(2)	dromedary
136		(1)	pedagogue
137		(1)	sepal
138		(3)	lethargic
139		(4)	delectation
140		(3)	embellish
141		(1)	osculation
142		(2)	cincture
143		(3)	barrister
144		(3)	carrion
145		(2)	lanate
146		(4)	chirography
147		(1)	mendicant
148		(1)	saltation
149		(2)	florescence

Webster Speech Test

A picture of each word was shown to the subject, who then responded by saying the word

	Word	Phonetic Symbol of Sound Required		Word	Phonetic Symbol of Sound Required
1.	pig	/p/	14.	girl	/g/
2.	ball	/b/	15.	thumb	/ɵ/
3.	table	/t/	16.	feather	/ð/
4.	dog	/d/	17.	shoe	/š/
5.	mouse	/m/	18.	television	/ž/
6.	nail	/n/	19.	chair	/c/
7.	ring	/ŋ/	20.	jug	/j/
8.	fish	/f/	21.	sun	/s/
9.	valentine	/v/	22.	zebra	/z/
10.	wheel	/h//w/	23.	rooster	/r/
11.	wagon	/w/	24.	lamp	/l/
12.	hat	/h/	25.	yard	/j/
13.	kite	/k/			

Botel Opposites Test

First Reader

		a	b	c
1.	white	yellow	black	back
2.	work	funny	happy	play
3.	day	play	red	night
4.	take	away	give	find
5.	now	the	them	then
6.	under	away	over	out
7.	old	mother	on	new
8.	stay	here	open	go
9.	run	walk	fast	look
10.	man	little	woman	work

Beginning Second

		a	b	c	d
1.	front	under	back	up	little
2.	always	never	every	nothing	more
3.	last	run	fast	first	will
4.	before	near	prize	high	after
5.	near	far	in	laugh	next
6.	little	every	big	hungry	better
7.	laugh	train	little	cry	funny
8.	city	garden	farm	fish	friend
9.	off	out	high	behind	on
10.	found	lost	good	top	all

High Second

		a	b	c	d
1.	left	above	right	change	straight
2.	dark	black	surprise	red	light
3.	happy	loud	sing	laugh	sad
4.	hard	soft	silly	large	pony
5.	warm	change	cold	supper	kitchen
6.	finished	thank	began	story	right
7.	young	ago	sister	old	teacher
8.	glad	money	seven	sorry	laugh
9.	push	pull	honk	picnic	straight
10.	forget	believe	remember	magic	sure

Beginning Third

		a	b	c	d
1.	easy	plenty	hard	welcome	trouble
2.	right	light	rain	wrong	yes
3.	against	again	farm	for	dark
4.	rich	tree	poor	yard	good
5.	empty	plenty	almost	full	perhaps
6.	lead	enjoy	follow	important	sign
7.	whole	cabbage	bunch	part	begin
8.	whisper	lucky	shout	enter	quiet
9.	mean	pleasant	excite	clever	slide
10.	dirty	face	clean	smooth	black

High Third

		a	b	c	d
1.	often	now	always	sometimes	first
2.	swiftly	slowly	silently	lonely	scared
3.	discover	arrive	look	lose	find
4.	daughter	brother	pair	stupid	son
5.	foolish	wise	sick	sorry	sweet
6.	thin	think	thick	tall	short
7.	smart	mad	weak	stupid	empty
8.	wide	small	narrow	pleasant	full
9.	husband	rather	uncle	son	wife
10.	enemy	friend	escape	question	bottom.

Fourth

		a	b	c	d
1.	absent	away	present	accident	clever
2.	awake	morning	night	throat	asleep
3.	careful	angel	devil	appetite	careless
4.	gather	scatter	collect	spoil	wide
5.	expensive	costly	cheap	rich	tomorrow
6.	fail	capture	succeed	miss	laundry
7.	uncertain	simple	never	sure	freedom
8.	reward	ribbon	medal	punish	answer
9.	beneath	above	under	below	joy
10.	answer	reply	question	state	letter

Letter-Sound Correspondences

Lower Case Letters

c	f	j	m	p	t	y	b	d	g	a
h	e	k	l	n	q	s	u	w	z	x
i	o	r	v							

Upper Case Letters

F	B	D	C	A	H	E	J
I	L	N	P	R	T	W	O
G	K	M	V	Q	S	U	Z
X	Y						

APPENDIX C

An example of:

1. A marked Miscue Record Sheet

2. A marked Retelling Score Sheet

3. A marked Oral Reading Sheet

Oral Reading Sheet

Reading Selection 16 — 82 Words

The red bus stopped at the corner (car).

A man got off and an (ant 2) elephant (not 1) got on.

The bus man looked at the elephant and

said "Stop there (here) (©). Stop now. You can't

ride on my bus."

The elephant said, "But (Bus) I must I must

get back (book) to the zoo for dinner (der). I have

some money." And he put (pŭt) out his trunk (thank)

with money (my) in it.

The bus man said, "But...but (bus)...you can't (can) (©).

You can't ride on my bus. You are too big."

Subject 2 — 26/3/75

Note: skips many lines, loses place frequently.

Name Subject 2

Date 26/3/75

Retelling Score Sheet

Characters		
A man	5 ✓	
An elephant	5	
A bus man	5 ✓	
Events		
The bus was red.	5	
It stopped at a corner.	5	
A man got off.	5	
An elephant got on.	5	
The bus man told the elephant to stop.	5 •	
He said the elephant couldn't ride on the bus.	5	
The elephant said he had to get back to the zoo/for dinner.	5	5
He had some money/in his trunk.	5	5
The bus man told the elephant he was too big.	5	

$\frac{10}{70} = 14\%$

Miscue Record Sheet

Name: Subject 2 Date: 26/3/75

Item No.: 16 No. of Words: 82

	Number	Percent
Total Miscues	18	22
Corrected Miscues	2	11

Miscue Categories	Number	Percent	Percent Corrected
SFL	9	50	50
GS	8	44	100
SGF	3	17	100
SM	0	0	0
OM	7	39	0
INS	0	0	0

Comprehending Score:

% SM Miscues	0
+ % Miscues (c) to have SM	11
	11 %
Retelling Score	14 %
Average	13 %

APPENDIX D

Transcriptions of Oral Language Samples for the Six Subjects in this Study

Transcriptions of Oral Language Samples for the Six Subjects in this Study

(One hundred words indicated by brackets)

Subject One

(And he stole one of the chickens and it laid nice golden eggs - it - they hatched and soon as - they got - he came a bad giant.

He - him - got his mum told him to give them - the - the kid told his mother to give him a saw or something and he cut down the tree and the giant got hurt - um - hurt hisself and they cut him up.

My brother caught a humming bird on my cement. It was laying there. It couldn't fly. Cause it went down. I think it was a baby one. We have a humming) bird feeder. Not too many times. Yeh, I know, because we had two at a time and they fited.

Subject Two

(There's this great big mountain, and there's people on it, and bodies all around, - blood. I had to shut my eyes for that part and - um - at the end - um - these guys were walkin'. These guys tripped on a wire and a blast came out of his hand. Many people fell off of the mountains, too. There was houses there - two of the mountains. In our country somewhere. I was ready to get my coat on and leave.

I'm gonna try to make it follow the road. Hey, why isn't it goin'? Hey, didn't you get a police car with this? I) got

one and the Volkswagon is fast and then I got two magnets and the police car goes after the Volkswagon. Must be crashing into the buildings. He didden even know, cause he was at work.

Subject Three

Mary. Sheep. Yeah. Light. Green. Victoria. Stop and go. Only one. Yeah. Cousin. We got a new one today. Green. Yeah. Cowboys and Indians. John Wayne. Bunny. Nope. Spider. Scare people.

(The sample for this subject, the Native Indian boy, is only 31 words long because he began to react negatively to the tape recorder and withold responses. Percentages of communications units and other language measurements were based on this sample.)

Subject Four

(He smashed over a bridge and he's to go over there. Hey, he's going backward. Look where he went. Look - how'd he get out? Hey, I can't----- I'm been in Victoria. Whoops. Police. Yipes. Park. He needs to back up. This is a crazy driver. Look - he went over the house.

Wham. She fell off a chair. It broke. What does that say? Cutting it. How 'bout a cookie? Here's the door - she gets in there. There's the -- stump. My dad has a chain saw. Even logs.

I hate bald. He didn't have any hair. He's Shawn's father. It didn't.) I don't know. Only the father. Because they're stronger.

Subject Five

(You can make things out of him. I'm gonna make him a black nose. I don't think so. John went down skiing and he fell over. She didn't ski, she had a sled. Only the bad. She was at home.

About a boy on the way to school. She stopped because the red means stopped. She saw the green light. She walked on to school. She would have been late for school. She was walking. The green means go. She was walking. She stopped. To stop for the red light and go for the green light.

Bob was a) boy. He ran to get the stick. Bob threw a stick and Spot ran after it. They had fun. He'll throw it again.

Subject Six

(You mean the one that ----- I don't know the rest of the stories, but I just know the people in the story. I think Betty's seven - no, John's seven. They have fun. They play around. Betty or Susan or themselves or the ball.

I hafta go to Paula's to have supper. I think I get to go. Raggedy Anne, that kind of doll, you know.

Sebastian, a dog, and a cat named Put-Put. I named him, he's my cat. Because I saw him go across the track and then I figured out I could call) my cat Put-Put.

APPENDIX E

Please see accompanying cassette tape recordings of the oral reading and conversation of the six subjects

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AN INVESTIGATION OF THE READING STRATEGIES

OF GRADE ONE CHILDREN

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