

INSTANT AND MEDIATED WORD
IDENTIFICATION: A TASK ANALYSIS

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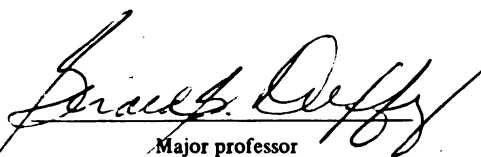
INSTANT AND MEDIATED WORD IDENTIFICATION:
A TASK ANALYSIS

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ABSTRACT

INSTANT AND MEDIATED WORD IDENTIFICATION: A TASK ANALYSIS

By

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This paper describes a simplified approach to the decoding component of reading based on a task analysis of this process. It first defines the two goals of word recognition as the development of a sight vocabulary of instantly recognized words, and as an internalization of the orthographic and syntactic codes which characterize written communication. Attainment of these two goals produces a reader who recognizes most of the words he is asked to read and can analyze those that have not yet been learned.

An analysis of the first goal suggests that instructional strategies must meet two distinct criteria. First they must have precise discriminators and second, they must contain strategies for creating memory to these discriminators. This results in a recognized word.

Teaching strategies which meet these criteria include:

- 1). The operant conditioning model which has built-in attenders, a cueing to the attender, a response, a feed-back system, and a practice-retrieval activity.
- 2). Multi-sensory strategies which use the senses of sight, sound, touch, and movement as vehicles to discriminate and remember a word.
- 3). Mneumonic bridges which both cue to the discriminator and act as retrieval mechanisms for memory.
- 4). Meaningfulness of the word being learned. This process creates memory for the word but slights the discrimination component for helping the learner generalize the discrimination behind the memory.

Analysis of the second goal of word recognition instruction suggests that a reader must learn to predict new, unrecognized words by applying a problem-solving attitude based on his understanding of various codes inherent in written communication. These are the orthographic-letter sound code, the syntactic-meaning code, and the morphemic-structural code.

To help the learner internalize these three codes into a working system for recognizing a strange word, instructional techniques are described based on the assumption that all three codes are at best an approximation of the spoken word. This concept demands that the teacher teach not only the skill involved in each, but also a reality-testing-approach which allows the learner to adapt

the imperfect code representations to real words that he
has spoken or heard.

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1973

INSTANT AND MEDIATED WORD IDENTIFICATION:

A TASK ANALYSIS

By

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CHAPTER ONE

THE PROBLEM

This is a paper about reading and the teaching of reading. More specifically, it focuses on the nature of decoding and its appropriate instructional techniques. The purpose is to delineate a simplified strategy for teaching this crucial reading skill.

READING IN BROAD PERSPECTIVE

Learning to read is commonly acknowledged as a primary goal of elementary education. Without adequate facility in this vital communication process, a child is left with only limited opportunities for further educational, social, economic and cultural advancement. As reading skills grow, so do the number and quality of options available to the learner; as they remain stillborn or stunted, so will the very quality of his life and future livelihood.

The Importance of Reading

Whether statistics supporting this Jeckel-Hyde characteristic of reading achievement are causal or only correlational, they still remain impressive. The apparent

relationship of reading with personality is just one example. For instance, Young, in describing case studies of disabled readers, found that in:

"two thirds of the cases under study (forty-one subjects, of which thirty-seven were boys and four were girls), misunderstandings⁹ of psychological and physiological factors on the part of the parents and teachers caused emotional difficulties in the children. Unfavorable comparisons with other children and attempts to coerce the children to read, as well as overemphasis of the importance of reading did, in individual instances, give the child a sense of inferiority and insecurity to which he responded by neurotic behavior such as stammering, nervous twitching, tics, enuresis, thumbsucking and the like or, in the most aggressive behavior, of stealing, lying and truanting from school.¹

Similarly, Siegel found that disability in reading frequently is accompanied by personality maladjustments² and Bouise, studying retarded readers, reports that teachers felt that twenty-one of the thirty subjects had serious personal problems.³ Finally, Fernald, a researcher who is also experienced in remedial reading work, sees strong causal relationships between learning to read and successful personality adjustment. She reports a study of seventy-eight children with serious reading and emotional problems, of

¹Robert A. Young, "Case Studies in Reading Disability," American Journal of Orthopsychiatry, 8 (April, 1938), 230-254.

²Max Siegel, "The Personality Structure of Children with Reading Disabilities as Compared with Children Presenting Other Clinical Problems," The Nervous Child, 10 (No. 3-4, 1954), 409-414.

³Louise M. Bouise, "Emotional and Personality Problems of a Group of Retarded Readers," Elementary English, 32 (December, 1955) 544-548.

which only four manifested evidence of personality difficulties before entering school.⁴ As Helen M. Robinson explains it:

"Without exception, a large number of severely retarded readers also evidenced emotional and personality maladjustment."⁵

The Amount of Reading Failure

While the importance of reading is clear, the magnitude of reading problems in the United States is in some dispute. Comparative longitudinal studies are lacking and, as a result, quotes from isolated studies tend to be used to support or negate a position depending upon the particular needs of the moment. Former Commissioner of Education, James Allen Jr. estimated that fully one-third of the children in the American Public Schools have reading skills inadequate for successful achievement at their grade placement.⁶ J. Money, in his book The Disabled Reader, cites comparable studies and arrives at a reading disability figure of twenty-eight percent.⁷

⁴Grace M. Fernald, Remedial Techniques in Basic School Subjects, (New York: McGraw-Hill, 1943) pp. 7-20.

⁵Helen M. Robinson, Why Pupils Fail in Reading, (Chicago University Press, 1946) pp. 76-92.

⁶Speech by Commissioner James E. Allen Jr., before the Los Angeles National Association of State Boards of Education, September 23, 1969, as reported by the New York Times.

⁷J. Money, The Disabled Reader, (Baltimore: Johns Hopkins Press, 1966), p.4.

On the other hand, William S. Gray reports only ten percent of the school population as having reading difficulties,⁸ while the National Council of Teachers of English, in an analysis of the National Assessment studies, attempts to lend support to this figure by reporting that with:

"nine year olds, 71% answered correctly on a maze reading exercise, 87% could read directional road signs, 65% could read store labels on merchandise, and 85% could read signs found in a zoo cage."⁹

These contradictory positions appear to be the result of semantic, rather than statistical, confusions. One figure results if reading disability is explained as a measureable lag between scores on reading achievement tests and grade placement in school while another results when reading disability is viewed as a lag between potential, as determined by measured intelligence, and reading achievement. In any case, it would seem appropriate to consider any child who fails to learn to read, whether part of a 30% or a 5% national statistic, to be worthy of our attention. Because the penalties of reading failure are so certain and so severe, the goal of reading instruction must be to reduce the number of reading failures, whether that reduction is eight children per classroom or only two. The point is not how good we are, but how we can be better. This paper delineates a strategy for "being better."

⁸William S. Gray, "The Teaching of Reading," Burton Lecture, Harvard University (Cambridge, Mass., 1957), p. 2.

⁹National Assessment of Academic Progress, Reading Summary; ERIC #ED067 654 (Microfiche and Research in Education) 1972.

BACKGROUND TO THE PROBLEM

The literature of reading is a vast compendium of theories, research, and instructional methods and materials which, in their variety and numbers have not been equaled by any other area of American educational endeavor. Beginning in the late 1880's with the first published research on reading achievement, the quantity of studies has grown in an almost geometric progression to the point where today it is literally impossible for even the theoritician to remain abreast of the mass of information published in just one year of reading research.

This quantity of research is really a mixed blessing. On the one hand it provides a wealth of data, fact, and opinion to guide a teacher in her instructional program, while on the other, it can, without adequate focus and organization, confuse and distort the instruction it is designed to enhance. The latter case is illustrated by the faddists who use these data, much of it of questionable reliability or insight, to create and market reading programs that attempt to teach children to read by looking into a mirror, or sounding in isolation consonants like b which cannot be sounded in isolation. It is not unfair to say that many instructional programs reflect more confusion than clarity, more faith and hope than professional assurance. Nor is it unfair to say that the typical teacher is still searching for the technique or the material that will solve

once and for all time the reading riddle.

To precisely survey and classify the mass of research and opinions about reading instruction is beyond the scope of this paper. However, it is helpful to group these efforts into two general themes. The first might be labeled "child-centered" and the second "process-centered".

Child-Centered Research

Child-centered studies have systematically examined the learner; his social, economic, physiological and psychological make-up. Such studies tend to relate successful or unsuccessful reading achievement to child differences. These differences stem from both genetic and environmental influences.

While an interest in the "whole" child is certainly an appropriate adjunct to educating him, all too often these studies become explanations first and then excuses for why he can't be taught. How often we hear teachers explain a child's lack of reading progress with such generalities as, "his I.Q. is only 84," or "his father is a migrant worker who picks pickles," or "his parents are separated, you know," or "his laterality is confused," or "he has a mixed dominance," or "he is hyperactive," or "he lives in the ghetto," or..., or..., or...! While child-centered studies can give a teacher a wealth of insight into the child and his behavior, they also open the door to an easy explanation for lack of teaching success, with the latter path being the one of least resistance. Since children who vary from what we class as

"normal" are often difficult to teach and do often require technique and materials that are different from the typical child, teachers too often fail to create a reading milieu that can advance reading skills and instead wait passively for the new Messiah to appear with the new and the fool-proof salve, passing the time by creating ever more elaborate explanations of why conditions over which the child and the teacher have no immediate control prevent the child from learning to read.

Process-Centered Research

Process-centered studies, on the other hand, have attempted to examine reading and reading failure as a problem in task analysis. If reading can be accurately defined and described and if what we do when we read can be identified, labeled, categorized and sequenced, then we can also begin to systematize our instructional practices, leaving no gaps through which a single child can escape to inadequate reading achievement.

This line of research and speculation has produced elaborate definitions and flow charts which, for all their scholarship, have had a minimal impact on instructional practices in the classroom. Process-centered studies have also resulted in teaching materials, programs and machines that almost obscure the teacher from her task as an instructional specialist. The new linguistics, the behavioral objective movements, and other outgrowths of this line of research have led teachers to the conclusion

that the expert, though he be far removed from her classroom both in time and distance, has made better judgments about the teaching of her charges than she can make.

When translated into classroom practice, such a view often results in a slavish devotion to a pet method or reading program and a rigidity of technique that forces all children to go through the same instruction, workbooks, and stories in sequence without benefit of individualization or prescriptive teaching. The fast group learns the story today, the middle group next month and the slow group next year. How often learners in this closed system describe their self concept as "I'm on page 61 of From Fins to Feathers,¹⁰ what page are you on?" or "I read that story last year when I was in third grade." The concept of self is positive so long as you are ahead but is negative as you find yourself farther and farther behind others in class and doing the same story with the same words in the same way but in a different year.

Summary

While much research has been conducted in reading, this research, whether child-centered or process centered has served to either distract or polarize the teacher in her instructional responsibilities. This paper attempts to cut through the maze of such studies and to provide a strategy for teaching word recognition which is based on an analysis of what a good reader does.

¹⁰Byron H. Van Roehel and Mary Jean Kluive, From Fins To Feathers, (Evanston: Harper and Row Publishers, Inc., 1966).

WHAT IS A GOOD READER?

What is the difference between a good reader and a poor one? Answers to this question, and there are many, are as various and as individual as the disciplines and points-of-view that provide them. Defining reading as a cognitive-perceptual-social-maturational-cultural-learned task has, as explained earlier, served to alert us to its complexities while simultaneously diluting our efforts to cope with them. The more a teacher tries to understand all the facets of the reading process and its instructional dogma, the more likely she is to discover that most everyone, from the pediatrician to the hairdresser, is an expert on this subject. And every expert has a theory. And every theory has a following. And every following has an answer. And we are back where we started. The quality of "talking to oneself" is surely one of the pervasive difficulties facing the teacher who earnestly desires to improve the reading levels of her children. Wherever she turns, she finds a new answer with its tomes of research and its dedicated cadre of practioners. And to compound her confusions, it would appear that the vast majority of answers are legitimate; that is, they do reflect honest scholarship, with enough practical experimentation on children to warrant some faith in their answer. What is she to do?

Experience and observation indicate that teachers make one of three basic responses to this dilemma. Some simply withdraw from the realities of the situation by separating

themselves from professional input and doing the best they can with their problem readers. Others join one or another of the various "answer" groups and become expert in both the theory and practice of that group's answer; classrooms reflect both dedication and a rigidity of purpose and technique that says to all their children, "This is the way to learn to read; now learn!" Still others simply become schizoid, bouncing from program to program, following this guru today and that one tomorrow, always frenetic in their openness to what is new.

The real tragedy of this description is that when measured by the overall achievement level of children, each of these three teacher-types will usually show equal success as reading teachers. One of the truisms that continually clouds the measurement of reading methodology is that most children are so pliant and malleable that they will show adequate success in learning to read no matter what kind of teacher they have or what kind of program they learn from. If American society and American education were satisfied with teaching most children, however, there would be no need for further research, program development, or State and Federal monies, and the hysteria surrounding children who fail to learn would vanish in a moment. But such is not the case.

K Universal literacy is the goal. If we are to reach this goal, we must first know what a good reader is and does.

Reading is a series of complex and interrelated skills, knowledges, and attitudes and, while these may number in the tens of hundreds, when we really describe the difference

between a good reader and a poor one, only five major classifications of behavior result. The differences between the good reader and the poor one are:

1. the good reader has a large stock of words packed away in his brain which he can identify instantly when he sees them; the poor reader knows fewer;
2. the good reader has internalized the various phonetic, structural and semantic-syntactic systems which characterize the written code, and can apply these systems successfully when he meets words which he has not yet learned to read, the poor reader approaches an unknown word as if it were a unique and individual artifact with little or no relationship to all the other words in the writing system and he therefore often uses insufficient or inappropriate clues to continually guess at words;
3. the good reader recognizes that the final result of reading is to listen to and understand what someone else is saying on paper; the poor reader may find this an impossible task;
4. the good reader can do the above operations efficiently while the poor reader may strain and stretch in his effort at making them functional for him;
5. the good reader enjoys and appreciates the skill of reading. He does it well, and finds the activity of reading to be a pleasant and satisfying experience. The poor reader is threatened by reading and, as a consequence, dodges it as a noxious experience.

CREATING A SIMPLIFIED READING MODEL

These five classifications of reading behavior can be restated as the five major goals of reading instruction. In

a very real sense, everything the teacher does in order to teach her children to read is a subtask of one or more of these goals. The questions she asks, the cues she gives, the skills she teaches, and the workbooks she assigns should all lead to the acquisition of one or more of these ultimate goals, for it is only through achieving them that the poor reader becomes a good one.

These goals, in turn, become the basis for a reading model which is limited to a task analysis of what a reader knows or can do that a non reader doesn't know or cannot do. Such a model specifies only five discreet variables. These are:

1. word recognition or instant word identification;
2. word analysis or mediated word identification;
3. comprehension or understanding and thinking about what is read;
4. efficiency or doing the above three tasks well;
5. affective or finding success in reading.

THE FOCUS OF THE STUDY

The purpose of this thesis is to offer the classroom teacher a guide for individualizing her reading instruction by individualizing the process of learning to read. This will be done by defining reading as a learned process and then examining this process to see what types of learning are indicated and how these learnings can best be accomplished through individualized instructional techniques.

It will focus the multitude of skills into a frame that

is both simple and workable. It will show that reading instruction is not an infinite series of complex tasks but is, rather, a limited system with few prescriptions and a small pharmacology. However, by understanding what it is she is attempting to teach and analyzing the few techniques that relate to how to teach, a real understanding of the purpose for reading instruction and its parallel instructional strategies will give the teacher insight and technique to perform as a teacher of individuals.

Specifically, this thesis will examine word identification, that area of reading instruction which appears to be the most controversial and confused, in an attempt to delineate its basic skill objectives, to describe instructional techniques most appropriate for the teaching of these objectives, and to relate the basic psychological, linguistic or pedagogical theories on which these techniques are grounded.

With the previously-described quantity of information available relative to reading instruction, a complex skill such as word identification often appears even more complex, and teachers are led to feel that reading instruction has a variety of techniques that match this variety of theory. Such is not the case. A more logical assumption is that there are a limited number of techniques appropriate to learning the various word identifications skills and that the effective teacher is one who really understands these techniques; what they are for, and how to use them.

SUMMARY

This paper synthesizes the processes involved in word identification. The strategy to be developed is based on a series of interrelated assumptions. These are:

1. learning to read is a critical skill in the education of children and worthy of the finest efforts of educators;
2. teachers are having only limited success in teaching a large minority of public school students;
3. teachers are ultimately the determiners of whether children succeed in learning to read;
4. both the quantity and variety of research in the area of reading have inadvertently diminished the teacher's effectiveness by distracting her from her responsibility as an instructional specialist;
5. much of this diminished effectiveness is the result of confusing and instructionally barren models of the reading process; and
6. a task analysis of reading generally and word identification specifically, results in the identification of a limited number of discreet and teachable skills.

The writer's ultimate goal is to clarify the word "identification task" in reading and its related instructional strategies as a step toward achieving the three general variables encompassed in this reading model:

1. A good reader knows something a poor reader doesn't. Specifically, he knows a lot of words when he sees them in print. He knows the phonetic, structural, and syntactic systems inherent in written communication. He knows how to listen to and think with the author of what he reads. He knows how to do these operations efficiently.

2. A good reader can do something a poor reader can't. He can successfully transfer what he knows about reading, the rules, the generalizations, the many aptitudes and informations, into the functional skills of doing reading.
3. A good reader is something a poor reader isn't. He is successful at school.

To accomplish the goal, the remainder of this thesis is organized into four chapters, as follows:

- Chapter Two - Decoding as a Dual Task
- Chapter Three - Instant Identification of Words
- Chapter Four - Mediated Identification of Words
- Chapter Five - Summary

CHAPTER TWO

DECODING AS A DUAL TASK

A major change in the achievement levels of retarded readers will usually result from changes in their word recognition skills. While there are five major reading differences between good readers and poor, reading retardation is primarily the result of confusions with the decoding or recognition component. This is the first and most formidable block to adequate reading achievement.

THEORIES OF DECODING

Like the theories of reading generally, theories on the etiology of decoding problems can be classified into two major groups. These are the child-centered theories and the process-centered theories.

Child-Centered Theories

Child-centered theories explain confusions with the decoding act as generating from either perceptual or chemical inadequacies in the learner. In the first

instance, approaches such as those of Delacatto, Frostig, Orton, Kephert,^{1,2,3,4} and others have their roots deep in the visual-motor-neurological make-up of the child. While their theories have generated considerable discussion and experimentation, along with such new terms as dyslexia and strephosymbolia, it is difficult to find significant and replicated studies which show a casuality between these diagnosed defects and learning to recognize written words. Balance beams, swinging lightbulbs, patched eyes and tracing skills have not seemed to enhanced a child's ability to learn the English decoding system.

In a similar fashion, Smith and Carrigan⁵ spotlighted the chemical component in the nervous system as having a "make-or-break" function in the decoding process. Again, this theory never generated any replicated evidence as to its importance in learning to recognize words. It flourished briefly and has now died.

¹Carl Delacatto, The Treatment and Prevention of Reading Problems (Springfield Illinois: Charles C. Thomas, 1959).

²Marianne Frostig, Miller, and Horne, Developmental Program in Visual Perception (Chicago: Follett Publishing Co., 1966).

³Samuel T. Orton, "Specific Reading Disability-Strephosymbolia," Journal of the American Medical Association; 90 (April 1928) pp. 1095-99.

⁴Newell C. Kephart, The Slow Learner in the Classroom, (Columbus: Charles E. Merrill Co., 1960).

⁵Donald Smith and Patrick Carrigan, The Nature of Reading Disability, (New York: Harcourt Brace, 1959).

In all fairness to these theories, it can be said that they have contributed new and broad insights into the dim areas of child growth and development and offer powerful evidence of the individual complexities involved in learning to read while drawing attention to the individual child and his special needs in learning to handle the decoding task. Their major breakdown has been in the development of remedial techniques and materials which actually work on children who are having trouble with this task. They have attempted to define and treat causalities which seem not to involve the actual components of the decoding act.

Process-Centered Theories

Process-centered theories have detoured any consideration of the learner and instead viewed difficulties in operating with the English spelling system as a problem in the system itself. This approach has flip-flopped back and forth between "whole word" and "phonics" systems. On the one extreme we find such programs as ITA⁶ and DISTAR,⁷ each built on a theory of decoding as a letter-by-letter sound process, while on the other is Scott-Foresman^{7A} with its traditional (but recently modified) whole word or "look and say" program.

⁶Initial Teaching Alphabet Publications Inc, New York.

⁷Distar Orientation, Participants Manual, Science Research Associates, Inc., 1970.

^{7A}Helen Robinson, and others Curriculum Foundation Series, Scott Foresman and Company, Glenview, Illinois, 1967.

Between these poles drift the eclectics, all 100 of them.⁸

Presently, the phonics people are in control but, if the past can give us hints of the future, whole word learning will return with new modifications and new materials based on new theories.

Process-centered approaches do have strong and continued experimental evidence to support their theories. Chall, in her book Learning to Read: The Great Debate,⁹ has examined fifty years of reading experiments and delineated the effects of the instructional program and processes. Her conclusions are clear. What, how, and when you teach a child the decoding system does make a difference. This difference is in favor of early and intensive letter-sound instruction. And once again we have returned to that basic dilemma facing present reading instructors. Studies and conclusions which favor one program or material over another are invariably GROUP studies. Each shows differential effects WITH NO PROGRAM APPROPRIATE TO ALL CHILDREN. Whatever the program, some children are damned to failure, with the number of failures remaining almost identical regardless of the program used. As was stated earlier, it is this writer's opinion that until teachers are led to view reading as an individualized process, with no one technique or

⁸Robert C. Aukerman, Approaches to Beginning Reading, (New York: John Wiley and Sons, Inc. 1971.)

⁹Jeanne Chall, Learning to Read: The Great Debate, (New York: McGraw-Hill, 1968).

program appropriate to all children, little progress will be made in lowering the number of children who fail to learn to read.

THE TEACHER'S ROLE

This assumption makes the reading teacher responsible for the achievement of her students. Decisions as to who learns what and how it is to be learned are decisions to be made by the teacher in her classroom. Only she has the opportunity to watch her individual students as they learn to read, and if they become confused with the standard approach as structured by the materials she is using, only she can make the necessary decisions that will modify and tailor the instruction to the individual child. She can rely on the expert to produce a program and materials that will help most of her children learn to read, but that expert, removed in both time and place from the realities of her classroom, can not make the modifications to fit the child who doesn't seem to catch on. The teacher must assume the role of expert. To do this, she needs confidence in herself and what she can do, knowledge about deviant learning styles, and a clear understanding of the decoding process and its instructional variations. Only in this set of circumstances will the achievement levels of problem readers show any dramatic improvement.

THE NATURE OF DECODING

In order to be a successful reader, a child must first learn to recognize the marks on a paper for what they are; words that he already speaks or listens to when others speak. To the non-reader, the lines and whirls mean nothing. It is only when their complex configurations are associated with the spoken word which they represent that reading takes place.

Teachers of reading normally define this activity as word-recognition, and proceed to teach skill upon skill in order to help the child learn to do this recognition learning. In reality, however, word recognition is a dual process having two distinct goals.

The first is the development of a sight vocabulary, or stock of instantly recognized words. As was stated previously, this is one of the five basic differences between good readers and poor ones. Good readers have a large stock of sight words. They know how to identify and remember one squiggle from another, and attach the proper name to each. If a child is a successful reader of the Houghton-Mifflin's Tip and Mitten preprimer,¹⁰ he has mastered the recognition of some forty-five words and is thus able to make them talk to him from the silent pages. The child who fails to develop this sight

¹⁰Paul McKee and others, Tip and Mitten, (Boston, Houghton Mifflin Co., 1966).

recognition of the same forty-five words is labeled a retarded reader and given intensive remedial instruction that should show him how to remember the words he has previously failed to learn. While the child who develops a large sight vocabulary has taken a giant step toward literacy, this step is only the half-way point to the goal of adequate word recognition skill.

The second step is the development of analysis or attack skills that will allow him to recognize a word which he has not met previously. For the child learning to read, it is a truism that he will always be stretching his decoding skills to master new words. Each page he reads will contain words that are not in his sight vocabulary and, therefore, cannot be read. Decoding instruction must, therefore, teach the neophyte reader a system by which he can figure out the new and strange words in order to continue his reading of that page. Teachers recognize this skill as word analysis or word attack.

What teachers often fail to see, however, is that the methodologies and techniques used to teach a child a sight word are not necessarily appropriate for teaching him to analyze a word he has not learned to recognize. The duality of the decoding process creates a crucial difference in both learning task and instructional technique.

Probably the best way to appreciate this duality in

identifying words is to use the names Smith has coined in his book Understanding Reading.¹¹ Here he adopts the terms "instant" and "mediated" identification to functionally and descriptively highlight both the type of recognition skill and its instructional variations. Instant identification implies a memory-retrieval task, while mediated identification suggests thinking, or cognitive-activity, on the part of the learner. If we must individualize the reading process for children who are confused in it, then this is the first place where such individualization should occur. A teacher must know whether her student needs help in developing a sight vocabulary, help in figuring out unknown and unrecognized words, or both. Further, she will need specific and varied instructional techniques that can be fit to any child who has not been able to grasp these skills in the normal group-process instruction.

ANALYZING THE DECODING TASKS

Identifying a skill and attaching a label to it can tell the teacher what she is trying to teach, but not necessarily how to teach it. So it is with word recognition. Calling this task decoding, instant recognition, instant identification, word analysis, word attack, or mediated identification can alert the teacher to where she is going, but not how she will

¹¹Frank Smith, Understanding Reading, A Psycholinguistic Analysis of Reading and Learning to Read, (New York: Holt, Rinehart and Winston, Inc. 1971). pp 3-5

get there. A most helpful way to map the various routes to an instructional goal is through a task analysis based on the type of learning involved. If the two word recognition skills (instant and mediated identification) can be described by an appropriate type of learning, and if this type of learning has verified conditions which enhance or inhibit its acquisition, then these conditions can serve as specific guides for the teacher in programming her instruction of these skills for individual students. Such an analysis will clarify both the goals of instruction and the multiple routes to these goals. With this kind of information, the teacher can select alternate teaching strategies from an array of such strategies, knowing that if a child becomes confused by one instructional route, she can choose another that might help the child arrive at the necessary skill destination.

In making such a task analysis, one thing must remain clear. If the analysis becomes unduly complicated, its purpose will be defeated. In such a case, the complexities of the task will far out-distance the instructional strategies available to the teacher. Multiple illnesses might be discovered while the teacher only has cures for a few. A task analysis should not be allowed to overrun the pharmacology of instructional possibilities. This event leads only to confusion and distrust on the part of the teacher and a lowering of her effectiveness in teaching children to read.

With these cautions as a guide, how might the skills of instant and mediated identification be analyzed?

INSTANT IDENTIFICATION

Instant identification of words can be generally described as a paired-association type of learning task. Its purpose is to create an oral response to a visual stimulus. When the child can pair the correct sound (spoken word) with the correct signal (printed word), he has learned an association. The more such associations acquired, the larger is his sight vocabulary and the greater is his reading skill.

While this task is very near in quality to Pavlov's dog learning to salivate to a bell tone, it is markedly different in that the response is very precise (the learner must pronounce the exact word) and is made to a discriminated stimulus (every word is spelled with at least one letter differing from every other word).

Instructional techniques in the skill of instant identification must, then, contain high-level discrimination skills, both visual and auditory. Without both a discriminated stimulus and a precise response to that stimulus, the child's associations between spoken words and their written forms will remain inaccurate and his decoding skills will not develop adequately for successful reading.

Finally, this skill of instant identification must produce a memory for the learned associations. Identifying a word correctly today and forgetting it by tomorrow, a

behavior that continually aggravates teachers, results in minimal achievement gains.

In summary, instant identification of words is a paired-association learning task in which the learner must see, (discriminate visually) say, (make a precise response) and remember (identify tomorrow what was identified today). Instruction in this skill must contain functional strategies for teaching a child to do these three tasks, and should also contain provision for alternate techniques to help children master these tasks regardless of their particular learning styles. Such techniques will be examined in Chapter Three of this paper.

MEDIATED IDENTIFICATION

Mediated identification, as the name implies, has a "time for thinking" spaced between the stimulus (the visual form being identified) and the responses (the oral identification of that form). The child who has this skill in his reading repertory goes through one or more thought processes as he attempts to identify the word. If his thinking is successful, then he correctly identifies it. If unsuccessful, he fails to recognize and name it.

The need for this skill is based on the presumption that the numbers of words available for instant identification will never be sufficient for fluent reading. On every page, new words will be found that have not been

discriminated and remembered. The child must, therefore, be taught techniques for analyzing these words in order that he might recognize them for the moment and proceed on his way to the rest of the paragraph and page.

Simply stated, the reader will continually meet strange new words that he has not learned to instantly identify. These unknown words must be solved for the moment, and it is these "problem solving" techniques which occur during the mediated time span. As the algebra student solves for x , the unknown number, so too does the reader solve for x , the unrecognized word.

This learning task is considerably more difficult than is the simple S-R associations defined in instant identification. It necessitates a cognitive-strategy which requires multiple-adaptive-behaviors based on the needs of the unknown word and the sentence in which it is found.

These needs are most clearly defined when we view the total word recognition act as a "decoding" task in which the reader deciphers the code (the English writing system) by identifying the spoken words imbedded in it. Mediated identification requires the reader to systematically attack an unidentified word through whatever code-breaking devices he has available to him in the form of analysis-attack skills based on problem solving techniques.

In order to decide what decoding skills to teach the Child, we must first define the code or codes to be broken. Again, we are faced with a very confusing array of definitions,

ranging from visual-motor to perceptual, social, emotional and cognitive. In an operational sense, however, the code can best be limited to its symbol-sounding component and its meaning or semantic component.

The Symbol-Sounding Components

The first of these reflects the alphabetical characteristics in which speech sounds are represented by specific and discreet squiggles (letters). In this instance, decoding is the process of recognizing the squiggle and its associated sound value, stringing groups of squiggles into spoken strings of sound, and recognizing these as real words. The child who is aware of and can operate in this letter-sound code has a powerful tool for mediating the identification of an unrecognized word. As long as the word has a spelling pattern that is of high enough frequency to be generalized, the child simply "sounds out" the new word, thereby recognizing it for an instant so that he can go on his way. He has "solved his problem" by using the letter-sound system as his mediator.

Success in learning to use the letter-sound system in this way appears to be a function of the child's ability to handle the variant spelling of one sound, (the sh sound can be spelled 16 different ways) or spelling modifications where a one-to-one relationship between letter and sound is established. In either case, sounding can be both imprecise and laborious. While the child finds it a good code

predictor on some words, on others it gives only minimal accuracy. To use letter-sound decoding, a child must be taught either a regularized spelling system where letter-by-letter behavior can be made to work for him or he must be shown how to use groups of letters which influence each other's individual sounds as his basis for such an analysis. "Sounding out" a word is a mediating process that requires very specific and detailed instruction. In special letter-by-letter programs it means one thing, while to the average learner who faces an eclectic hodge-podge of phonics instruction, it means something else.

A second and related symbol-sounding component which is useful in mediating an unrecognized word is that of using a meaning code imbedded within the individual word. Here the reader spots known elements through a form of instant identification and then applies whatever other sounding analysis is appropriate. In a new word such as fishhooks, for example, the reader may not recognize the word instantly but does see the word fish as a meaning unit he already knows. Continued mediation, perhaps based on letter sounds, gives an approximation to the sound of hook. The reader then squares the approximation to the reality of the moment and makes his identification. Specifically, he has used a compound mediator; that is, one based partly on the instantly recognized meaning unit fish and partly on a letter-sound approximation of hook. Such a problem-solving technique is often labeled structural analysis.

The Meaning-Semantic Component

Finally, if the unknown word is in a syntactic structure, and if sufficient other words in that structure have been identified, then the reader can make a guess at the new word on the basis of the total communication that surrounds it. The accuracy of this guess depends upon the accuracy of identification of other words in the structure (sentence) and the child's language facility in either recognizing or generating the completed context of that structure. Here, he is taking a group of words, at least one of which is new in form, and using syntactic closure to predict the sound value of the new word based on its meaning value in the structure. Success results when the reader recognizes enough of the other words in the sentence to establish its context and communication direction and when he has the appropriate experience background and language facility to close the structure.

Again, as in sounding, we find that some words are more amenable to this meaning code than are others. Sometimes it works well, sometimes poorly. It again can be combined with sound or structure skills to increase both its accuracy and speed. Using sentence sense and even the first letter sound of a new word increases both rate and accuracy of identification.

In summarizing the mediated identification process, at least three problem solving techniques are appropriate to the two major codes used in reading. One is based on letter

sounds in which the child mediates the unknown word through a form of "sounding out." The second recognizes the fact that English words have compounding possibilities and some word parts can be instantly identified while others will be sounded. Used in combination, these skills produce the structural analysis mediators. Finally, words in sentences are part of a code of meaning. The reader who can and does think and project what is being read will use this projection to predict an identification of a new word based on the context in which it is found. In this case, the code is not letter sound or structural meaning but, rather, phrase, sentence or even paragraph meaning.

Mediated identification is the process of figuring out new words. The good reader uses appropriate techniques based on either the letter sound or contextual meaning codes inherent in the English writing system. He knows or can use various mediators and is flexible enough to problem solve for an unknown word in more than one way when it is necessary. Furthermore, he is able to compound these three basic skills into more subtle and complex mutations depending upon the needs of the unrecognized word. He has internalized both the letter sound and meaning systems imbedded in the reading-writing code. Techniques for developing such skills will be described in Chapter Four of this paper.

SUMMARY

Word identification is a dual process. On the one hand, instant identification is a low level, S-R process of association between written and spoken codes. Its conditions of learning include both precise discrimination and long term memory. Therefore, conditions of instruction must reflect appropriate strategies for these learning conditions. On the other hand, mediated identification is the process of figuring out an unknown word. When a word is not instantly identified, the learner must have multiple techniques for making it talk to him. These techniques are many times more sophisticated and difficult to learn than are the discrimination-memory strategies of instant identification. They are based on the coding systems of English writing; namely, letter sound and syntactic meaning. The good reader has both a massive store of sight words that he can identify instantly and a multiple cognitive strategy for mediating those new and strange words which he must constantly read.

A teacher's instruction in the word recognition skills should reflect her understanding of this dual task and the realization that multiple instructional strategies are available to teach those children who have specific learning styles. There is no single way to teach a child to discriminate a word. There is no single way to teach a child

to attack a new word. The teacher must be able to fit the identification task to the child in the most efficient and effective form. Only with this kind of speciality will the crippling decoding problems of problem readers be alleviated.

CHAPTER THREE

TEACHING STRATEGIES FOR INSTANT IDENTIFICATION

Traditional techniques for developing a sight vocabulary of instantly recognized words have relied on repetition as their primary teaching-learning strategy. Both the concepts of controlled and repetitive vocabulary in the basal readers and the word drills found in many workbooks and games devised by teachers are the result of an awareness that repetition does play a critical role in the acquisition of these sight words. However, this is not enough strategy for many children to learn by.

As described previously, learning to make an association between a spoken word and its visual representation is a dual task containing both discrimination and memory components. While repetitive drill might produce the latter, there is no reason to suspect that it influences the former. Repetition without selective discrimination, especially in a code as complex as the English-spelling-writing-system, produces a precise response to a general stimulus or, in reading terms, a word-guesser who uses insufficient cues in his word identification. This is precisely the behavior that so often separates good readers from poor ones. The good reader has intuitively learned to use the letter or letters that count in

making his word identification, responding both to those that are common in shape and position to other letters in other words while also spotting the contrastive letter or letter position that makes that word unique.

The task description of instant identification given in the preceding chapter suggests a constellation of factors that must operate if the child is to make the desired word recognition achievement. It is only through the development of instructional techniques and devices that incorporate all of these task factors that the teacher can really feel confident of a positive influence on the acquisition of this skill. She must simultaneously: 1) teach the child to attend to (discriminate) what is important (the eyes can look, but the brain must see what counts) 2) insure that the child pairs the precise name to the discriminated word (there must be contiguity and coordination between what the eyes see and the voice says) and 3) produce memory for the association between the visual and spoken form of the word either through mediating bridges or repetition or both. Teaching techniques for helping a child learn to instantly identify a word will need both appropriate attention techniques and repetitive or mediating strategies for retrieval and memory control.

This chapter will describe and illustrate four basic instructional strategies designed to fit these parameters. These are a discriminating cue strategy, a multi-sensory strategy, a mnemonic bridging strategy, and a psycholinguistic-based strategy. With only these four and their

many possible mutations, a teacher can successfully individualize her sight word instruction so that all children can develop this necessary skill.

THE DISCRIMINATING CUE STRATEGY

The first and most important instructional strategy a teacher must have for helping children learn the discrimination-memory task inherent in instant identification comes directly from four conditions of learning which control its acquisition. These conditions have often been systematically examined and described, but they have not been translated for teachers or consciously appropriated by them. For instance, it is possible to predict the rate at which a paired-association can be made by controlling these four variables, with learning taking place when all four are present but slower and considerably more haphazard when even one is absent. The point is that teachers who want to help children learn to recognize and remember written words must learn to control these four conditions of learning.

The conditions which the teacher must learn to control and direct are:

1. attention to the salient features of the word to be learned;
2. a precise response to these features;
3. accurate feedback regarding the success or failure at making the desired response; and

4. repetitive practice to insure that the response is habituated and can be retrieved in varied settings.

Attention

In the paired-associate learning paradigm, the condition of attention is designed to produce the discriminated stimulus so absolutely necessary for accurate word recognition. The child who is left on his own to decide what he is supposed to see when he looks at a word will often choose obscure or unreliable features that produce confused and unreliable memories. Such a child might learn to see the dot over the i as the feature that counts, or the page number, or a picture. Such cues do work often enough to give the child some confidence in his identification strategy, but sooner or later this attention to a system artifact will fail. Such a learner will often learn to recognize and remember a word, but have no idea of why the word is so identified.

The teacher's task is two-fold. First, she must decide what discriminator will prove most effective for the word to be identified and, second, she must know how to direct the learner to this discriminator.

Selecting a Discriminator

The teacher's selection of a discriminator or discriminators will depend upon two factors; is the discriminator appropriate to both the English spelling system and the learner's level of competence. To meet the first

criterion, a teacher has relatively few options. English spelling is a letter-sound alphabet which walks across the page, both in word and sentence, with a left-to-right movement. The two basic categories of discriminators, then, are the twenty-six individual letters and their position or sequence in a word.

At the early stages of reading, a child needs relatively few discriminators to tell one word from another, but they must be carefully chosen. When the sight vocabulary is small, the first letter in a word is often sufficient to discriminate it from other words. As more words are learned, the discriminators which separate one spelling from another must become more sophisticated and greater in number. In effect, what the teacher is doing is building a system of successive discriminations in which the learner progresses from single, gross, letter signals to compound, fine ones.

An example of this succession might be the word look. This is the first word in the Scott-Foresman preprimer and might be taught by cueing the child to the letter l. With this single discriminator, the child can learn to see and remember the one word look. Ten pages later, he is asked to memorize little. Now the l is no longer as useful as it once was, because it alone will not differentiate little from look. Here, the child must be directed to another discriminator that can separate these words from each other. Now the teacher can cue to the letters k in look and l or t in little as suitable for discriminating one word from the

other. In this fashion, the teacher shows the novice reader the importance of multiple letter cues and their values as precise discriminators for telling one word from another without cluttering his initial efforts at discrimination with too many things to see at one time. Such a process is in marked contrast to the teacher who, when faced with teaching the word look, says, "now see the word l-o-o-k. Now say the word, look." While some children are able to grasp the significance of all the letter units in this word and their function as key discriminators, many children become confused under this deluge of cues, and retreat to some simpler, and often inappropriate, signal to use as their personalized discriminator. As stated earlier, this is often the genesis of confusion and apathy over learning to identify written words.

As a general rule, the teacher should use first letter, last letter, and middle letters as discriminators in this order. The difficulty in this deceptively simple cue selection is that the child is being asked to see and use comparative-elements (look and little are related because they have the same initial letter) while simultaneously searching for the contrastive cue that separates words related by multiple similar letters. The path of least effort is to respond to the comparative or similar elements, and thus, too often confuse such words as where-were, come-came, the-they, and want-went. If the teacher can direct her learner to the successive cues of first, last and medial

letters while stressing the importance of searching for the discriminator which ultimately separates this word from all others, then her readers will develop the skill of selective-discrimination so necessary for accurate word identification.

The second consideration the teacher must use in her selection of discriminators is the competency level of the child. As skills and sight vocabulary increase, the teacher can ask for higher level discriminators. As initial letters lose their discriminative-value because the child is learning many words that begin with the same letter, the teacher must help him to learn to use successively more hidden discriminators for his word identification. While the first grader can use the finite and more basic signals such as first, last and middle letters, the fourth grader is operating with such a large store of sight words that he must be able to search for and find single letter cues wherever they occur in a word. His searching strategy is many times more complex than the beginning reader's because he has so many more words to eliminate from consideration. Too many cues at the early stages of sight vocabulary acquisition can make some children flounder, while too few cues at later stages of reading competence produce word guessing and reading frustration.

In summary, the teacher is responsible for directing her learner's attention to the discriminators necessary for accurate word identification. These cues are inherent in the reading process and eventually include all the letters that make up the word. As discrimination and memory skills are

developed, the reader learns more efficient searching strategies and is able to simultaneously see the various letters that put the word into a general category with other words of like spelling and the specific discriminator that gives each word its unique identification.

Directing Attention

Phonics, or letter sound associations, is the single most important teaching device for calling attention to the key discriminators in a word. While the importance of letter sound skills in learning to read has been firmly established, why these skills produce superior readers has not been accurately explained. It seems reasonable to assume that the child who has been taught to attach sound value to letters and to use this skill for word identification has really been given the best tool for discriminating and remembering the key letter elements in words. Hence, phonics may not be the process by which we learn to read words so much as it is a process for highlighting the visual components that must be discriminated and remembered in order to make accurate associations between written and spoken words. Letter-sound, then, is a key technique for helping the reader discriminate and remember a word for instant identification. One should be cautioned, however, that the use of letter sounds as memory bridges is not the same as sounding out a word, a difference which will be made clear in Chapter Four of this paper.

Visual devices also can be used to direct a child to the discriminators necessary for instant identification. First letters of words can be color coded or enlarged. Dot-to-dot tracing of these letters can also serve to alert the child to their importance as keys to an identification. Similarly, once the teacher has determined the necessary discriminators for a word, an index finger accurately applied to the key elements and this action copied by her learner is nearly infallible in producing the desired discriminative behavior.

While these directing activities are not meant to exhaust all the possible ways in which a teacher can highlight the discriminating features of a word, they do suggest the three most useful areas of activity. Letter sounds, visual emphasis through color and size, and physical activity through pointing or tracing can each produce attention to the precisely discriminated stimulus which is necessary for instant word identification.

Response

The teacher's responsibilities for control of the second of our four conditions are few in number but can be frustratingly complex. Her task is to insure that the child makes a response to the word being learned at the same time his eyes are cued to the necessary visual discriminator. In simple terms, she must direct the learner to attend and insure that he is attending to the correct stimulus.

Response without precise stimulus discrimination is worse than no response at all, so she must simultaneously pair the attending behaviors described on the preceeding pages with the desired responses.

One of the truly significant trends in reading instruction is the development of "high response" programs which insure that the learner makes multiple responses to carefully programmed words during each teaching lesson. These programs are based on the assumption that learning cannot take place without responding activity on the part of the learner. To the unaccustomed eye they appear to border on chaos, but in reality, they are simply and logically using the response element in learning to its fullest advantage. Such programs are in marked contrast to the sedately subdued reading circles seen in so many traditional classrooms. In a high response atmosphere, it is not uncommon to have a child perform as many as one hundred separate responses in a fifteen minute lesson. Similarly, it is not uncommon in a traditional reading circle to see a passive child give no evidence of a desired response to any reading activity.

For instructional purposes, the teacher must be aware that each teaching activity needs multiple "do it" opportunities for her learner. In this situation, both the learning level and noise level will go up appreciably.

Feedback

This condition of learning goes by many names, depending upon how you accept its effect. Some call it reward or reinforcement, while others refer to it as bribery. Whatever is in its name, this variable has a verified and powerful effect on learning. Simply stated, learning theory suggests that a response which is rewarded tends to reoccur in the same set of stimulus conditions. Applied to word recognition, it predicts that the teacher who consciously and continuously alerts her reader to the appropriateness or success of his learning will teach words faster than the teacher who does not.

In the language of stimulus-response learning, reinforcement has a cold, calculated, mechanical quality. In reality, however, reinforcement describes the teacher behavior that both supports and encourages the learning efforts of children. It is the antithesis of an impersonal, dehumanized learning environment.

Describe a teacher who is available to and supportive of children and you are describing a teacher who uses reinforcement, whether it is done consciously as a prescribed teaching-behavior or intuitively as the act of a warm and sensitive person who simply does what is right to improve the learning capabilities of her children. In either circumstance, good teaching mirrors this support and encouragement component. When we realize that a computer

made up of tapes, wires and electrical circuits is often more supportive of and reinforcing to children's efforts to learn than a professionally trained teacher (who ought to come equipped with the empathy and sensitivity to respond to her children with support and encouragement), the extensiveness of the problem is clear. If teaching is humanism, then the very heart of humanism is the act of reinforcement. Without it, the child quickly learns that school is a cold and sterile place.

Feedback is, however, an individualized behavior which must fit both the teacher's personality and the individual requirements of her children. In the latter, reinforcement theory describes both contiguity and appropriateness as critical reinforcement dimensions. Some children need immediate knowledge of the results of their response, while others can delay this feedback for varying lengths of time. The teacher needs to know which child is which and make her feedback available when it is needed by the individual child. Delayed feedback will be no feedback to certain children.

In a similar fashion, not all feedback will have the same effect on all children. Any given reward may prove positive to some children and either neutral or even negative to others. Again, the teacher's job is to know her children and to use a feedback system that touches each "where he lives."¹

¹Hani Van de Riet, "Effects of Praise and Reproof on Paired-Associate Learning in Educationally-Retarded Children" Journal of Educational Psychology, Vol. 55, No. 3 (1964), pp. 139-143.

Some help is provided, in this regard, when reinforcers are catalogued into a hierarchy. This hierarchy runs from extrinsic (or feedback from outside the child) to intrinsic (or self-reinforcement). The number and description of these, from one end of this continuum to the other, approximates the following chart.

extrinsic				intrinsic
<u>physical reinforcers</u>	<u>physical reinforcers</u>	<u>physical reinforcers</u> verbal	<u>physical reinforcers</u> physical	<u>self reinforcer</u>
1. money	1. touch	1."good job"	1. smile	1. child pats himself
2. candy	2. handshake		2. wink	2. child smiles to himself

The teacher must be able to use the type of reinforcer appropriate to her child and, through pairing with the next higher level, help the child to accept higher level rewards. The mature learner is able to accept feedback that is both immediate and delayed and feedback that comes from any point on this hierarchy. However, this is learned behavior which must often be taught within the context of the individual classroom.

Reinforcement presents one final confuser. Some children will accept and respond to a particular reward when it is given by one person, but not when it is given by another. Because you, the teacher, can use certain reward devices does not mean that someone else can do the same with your children.

Authenticity of the rewarder, be it teacher or computer, has its own effect on the value of a specific reward and a specific child.

At the lowest common denominator however, reinforcement is a smile, a nod, a genuine word of encouragement and support. Such feedback works miracles in the learning characteristics of children.

Practice

The fourth and final condition is practice. The teacher must be able to control and direct the child in repeating and retrieving the word being learned. This activity is based on the knowledge that "one-shot" learning seldom takes place. Before a word can be remembered and retrieved, it must be seen and said many times in many contexts. Practice is the teacher's technique for controlling this necessary condition.

The many cookbooks of reading activities available to the teacher attest to the importance of this variable. Classrooms are filled with games and drills which can produce the habituated word identification necessary for fluent reading. The major problem with this "fun and games" approach is that teachers have been led to believe that the game or the drill itself is capable of teaching the word identification. This is a tragic mistake. A practice exercise or workbook drill is only as good as the teaching that preceded it. These activities do not teach. Teachers teach by structuring the task in accordance with the three learning conditions

previously described in this chapter. The teacher must first select and cue for the necessary discriminating attender, provide and encourage multiple responses to the word being learned, and support and encourage through reinforcement. It is only the rare child who is consistently capable of providing these conditions on his own. Such a "self-learner" is the exception, not the rule. The teacher must recognize this and assume responsibility for the three previous instructional conditions and not leave it to some rote drill or game to play her role. Once these are established, however, then attractive and stimulating drill can make the desired word identification instantly available for the child's use.

The forms such drill can take are too various and too familiar to explain here. However, in using a practice exercise, the teacher should determine its suitability and accuracy in producing the word identification being taught. To help her in this judgment, the following suggestions are offered.

A practice drill should contain the same highlights or discriminator cues used in the original instruction. These can be faded gradually, eliminating the colors, enlargements, and so on during the course of the practice until the identification is made to a neutral stimulus, since the child will need to respond to the word as it is seen in real life and not coated with various cuing devices. A practice activity should, whenever possible, be done without teacher intervention.

With only minimal directions, the child should be able to repeat the word identification. Similarly, it should, when possible, have a built-in feedback device that can both reward or correct the child's response. Such things as pictures or color and shape matches can serve in this capacity.

Repetition is a necessary condition of learning. It is disturbing to realize that drill, repetition's good right hand, is viewed with such distaste by many teachers. Stimulating and accurate drill exercises call for creative and imaginative teachers who are so knowledgeable in their understanding of reading theory and pedagogy that they perform daily miracles with practice activities. Their games are exciting and the repetition is to the point of the task. As a result, their children learn.

Summary of the Discriminating Cue Strategy

It can be seen, then, that the discriminating cue strategy for teaching sight words requires the control of four conditions. The first condition, of fundamental importance, requires that the teacher select the most appropriate discriminator and that she efficiently direct the learner to this discriminator. She must then insure that the learner makes multiple responses, that he receives suitable feedback regarding the appropriateness of his response, and that he completes practice to habituate his response. Skillful use of this strategy will be effective

in teaching most children to instantly recognize most words.

THE MULTI-SENSORY STRATEGY

While the instructional strategy just described should be the teacher's most important device in promoting accurate discrimination and memory for word identification, there are other techniques which may be equally appropriate for some children. Foremost of these is the multi-sensory activity often labeled as the Fernald or VATK method of sight word instruction.

A Description of the Strategy

This teaching strategy is based on the assumption that both discrimination and memory for words is significantly enhanced by involving more than one or two of a child's sensory systems in the learning. For many children, perhaps even most, using only the eyes and ears for sensory input of the word being learned is sufficient for accurate discrimination and retention. Here we see the typical "look and say" approach to paired-associate learning. But, for the child who does not receive a sufficient discriminator and/or memory bridge from these two primary senses, multi-sensory theory suggests the addition of both the senses of touch and movement as significant addends. These additions produce a more powerful stimulus and greater memory bridges because they double the sensory activity. Hence, the initials VATK

stand for the visual, auditory, tactile, and kinesthetic sensory modes used in multi-sensory learning.

Multi-sensory teaching strategies are not new. In the thirties, Grace Fernald developed the structured application of multi-sensory activities which now bears her name. Studies of this technique show both remarkable results and devastating failures. The problem is that this technique, like many other educational innovations, was viewed as a panacea which could be applied to all children suffering from word recognition problems. Individual differences were ignored and, predictably, the results were equivocal. Some children learned; some did not. And again, as so often happens in educational decisions, Fernald's program descended into semi-oblivion because it would not do all things for all children. The point is that some children can develop their sight vocabularies through carefully structured multi-sensory activities. It is the teacher's job to try this approach and to determine which children can and which children cannot learn with it. Only then can she really proclaim that her reading instruction is individualized.

Using the Multi-Sensory Strategy

A teacher using the Fernald approach would go through a series of five steps. First, she selects a word to be learned. This might be her decision or it could be self-selected by the child. Second, she familiarizes the child with the word by speaking it and having him also repeat it out loud. Third,

she writes the word, usually in cursive style, on a card of sufficient size and durability to stand-up to repeated tracings. Fourth, she paints over her writing with a quarter inch brush dipped in a solution of fifty percent water, fifty percent white glue, and perhaps some tempa paint for added visual definition. Fifth, fine sand is then shaken over the word and it is allowed to dry, a process which takes only a few minutes.

Now, the word is ready to be learned. The teacher traces the sandpapered letters with her index finger, sounding each letter as it is traced. When the tracing is finished, the word is spoken in a normal speaking cadence. She then closes her eyes and tries to visualize what she has just traced and said. The child is then directed to mimic the teacher's activities and repeat them until the word is seen "behind the eyes" and can be written from memory on another sheet of paper. The key here is that the child is simultaneously seeing, hearing, and feeling with his fingertips and the muscles in his arm the word being learned. Each sense contributes its input to his discrimination of and memory for the word.

The child who is just learning to read through his fingers sometimes needs careful modeling of the total activity. In such a case, the teacher can let her right hand rest on the child's as he traces the word, guiding his fingers with her muscles, always sounding the letters as they are traced and always speaking the whole word as the tracing

is completed.

Some teachers find that alternately tracing the sand-paper word and then repeating its movement and sound in the air serves as a useful repetitive activity. Whatever small deviations are made, a child whose psychological mechanisms are tuned to this massed input of the word and its sound will learn to recognize and remember it with surprising ease.

Summary of the Multi-Sensory Strategy

Multi-sensory teaching meets all the criteria for paired-associate learning. The total word and its individual letter parts are visually and auditorially discriminated by sight, sound and feel. Additionally, each of these senses act as a bridge to recall the word sound with the word shape. It is an almost painless way to apply the previously described instructional model to learning sight words. It has built into it the necessary attender, response, feedback, and repetition mechanisms necessary for successful learning of a paired-associate task.

With all its strength, this program is seldom seen in the public school classroom. While reasons for this are obvious, they are equally weak. A multi-sensory activity is time-consuming, but if it is applied only to those children who have difficulty with instant word identification and who can profit from its approach, the number of children who need this technique will be small in any given classroom. Once the format is learned, aides or student tutors can take the

teacher's place in correctly modeling the individual word. Cards of sandpaper words can be passed from student to student and year to year. Once tried, the classroom teacher will find this both a valuable and workable teaching technique which will produce a sight vocabulary for some of her children when other less accurate and directed activities have failed.

THE MNEUMONIC BRIDGING STRATEGY

A third approach to the teaching and learning of sight words is based on the theory of memory or mnemonic bridging. In the initial acquisition of a paired-association, some small bridge can be created between the stimulus and the response being associated. It has been demonstrated that good learners have a repertory of such devices and continually apply them in making new response associations. They create a needed cue to retrieve the response. Every school boy has used such tricks as R O Y G B I V to help him recall the colors in a spectrum or "Every Good Boy Does Fine" to remember the lines on the treble staff in music. The application of this memory crutch to the acquisition of a sight word has both power and a built-in-trap which can totally destroy the reader and his understanding of the coding system. Applied with care and appropriate judgment, it has many possibilities for helping reluctant readers develop confidence and an initial sight vocabulary.

Applied without a careful assessment of its shortcomings, it can compound the learner's confusions.

A Description of the Mnemonic Bridge Strategy

As was seen in our description of the paired-associate task, both discrimination and memory have equal needs in the successful pairing. Memory bridges tend to be heavily weighted in favor of the latter condition. For instance, it is common to see a teacher cue a child to the word monkey by calling attention to the letter y and its tail. The explanation goes thus; "See the tail on the end of the word? Monkeys have tails, so we can remember this word is monkey by seeing its tail." Similarly, teachers emphasize the bridge of "two eyes in the word look, and since we look with our two eyes, we can remember this word when we see it."

While this bridging for the child does often produce the desired memory for the word, IT IS USING TOTALLY INAPPROPRIATE DISCRIMINATORS for accurately separating one word from another in the English spelling system. A child who is led to believe that such unique and one-of-a-kind accidents are reliable signals of the spelling-reading code is doomed to a successively more cluttered and chaotic sight vocabulary. While the memory strategy becomes stronger, the discrimination component becomes weaker. The child may learn the word but he does not learn to pick out appropriate discriminators, with the result that there is a negative transfer from that word to all future words. In such a case,

learning to recognize words becomes a purely arbitrary memory act with no assurance that the child recognizes the code aspect of the act. If a y tail identifies monkey, what is Mary to think?

It is very difficult for teachers to control the urge to use a memory shortcut. Such cues as "It was last week's spelling word" or "Look at the picture. Now do you remember the word," offer similar and equally falacious memory cues. Some children quickly learn that it is not the letters that identify a word but rather the page on which it is found or the picture that is below it. To see a child close his eyes or look at the ceiling while trying to recall a word from last week's spelling list is a prostitution of the reading act, and any small rewards that accrue from its practice are quickly wiped out in the larger and more devastating confusions that are certain to follow.

In order to work memory strategies or bridging into her instructional activities, a teacher must remember only one thing. She must realize that a bridge built on non-coding bricks will quickly collapse. What bridges she chooses to create for her learners must be appropriate to the spelling and HAVE A TRANSFER VALUE for future word recognition. This is the only viable way to include the discrimination component in this memory strategy.

As previously stated in the "attender" description of this chapter, letter position and letter sound are reliable

and transferable elements in the coding system. It then follows that letter position and letter sound should be the bridges that link the written word to its spoken form. THIS IS NOT SOUNDING OUT WORDS. It is simply giving the child ever more appropriate signals to help him recall the spoken word.

The teacher's technique for cueing a letter sound or position can be through oral direction, physical direction, or both. If she wants a child to remember look, the sounding of l as it is cued with a color clue or finger touch will work adequately.

Summary of the Mnemonic Bridge Strategy

Word recognition is the oral identification of a written word. The writing system is arbitrarily left-to-right and the letters represent English speech sounds. Any memory device a teacher uses to help her learners recognize and remember a written word must reflect these givens. If she directs attention away from these code characteristics by cueing to poor memory bridges based on pictures, configurations, or the like, she is unnecessarily confusing an already confusing act.

THE PSYCHOLINGUISTIC STRATEGY

The final instructional strategy used to help children develop a sight vocabulary of instantly identified words is

based on a psycholinguistic phenomenon which many teachers have recognized and applied to their reading instruction without ever understanding the source of their technique. An elementary teacher with even minimal experience learns that children remember some words much more quickly than others. When asked whether they would rather teach the word skeleton or what to a child, teachers invariably answer skeleton and explain their selection as an effect of the child's interest in skeletons as opposed to whats. Such is not the case. That a learning differential does exist between words is certain, but the reason for this differential is not some inherent "interest" quotient. Instead, what is operating here is the psycholinguistic principle of "meaningfulness" or M value.

A Description of the Psycholinguistic Strategy

From the older studies of Ebbinghaus and his memorizing of nonsense syllables to present sophisticated verbal learning studies, meaningfulness has been recognized as one of the most powerful variables in verbal behavior. While this concept can be measured in various ways, it is most often defined as the number of associations given to a word in a free association test. Usually the researcher says to a subject, "I'm going to say some words. I want you to listen to a word and then say the first word that comes into your head." This direction is then followed by a stimulus word which is

repeated until all the associations to that word have been exhausted. For the stimulus word skeleton, a typical response is "bones." The word skeleton is again repeated and this time the associative response might be "dead." This would be repeated until the person can no longer make an association response. These associations are then totaled for a comparison of relative size or associative strength to other words similarly tested. The final result is an M value, or a measurement of the number of associations or experiences a person has had with that word. Words that have a higher M value require less repetitions for memory; words with lower M require more.

In reading instruction, the language experience approach is rooted in this concept of meaningfulness. The success that is so often attributed to this technique comes directly from the potency of the words being learned. The more experiences a child has to associate with a word, the more potent the word becomes. The more potent the word, the quicker it is learned and retained.

Using the Psycholinguistic Strategy

In using the language experience approach for acquiring a stock of instantly identified words, a teacher may help or hinder the future reading growth of a student. He might be hindered because the technique does not meet all the conditions for a paired-associate learning task. As stated previously, strategies for instant identification must be

built on the dual conditions of discrimination and memory. The learner should be taught with techniques which pair a discriminated symbol to a precise response and which have the necessary repetitive or mnemonic devices for appropriate recall. In the case of meaningfulness and language experience techniques, the memory factor is a result of response strength and, therefore, fulfills the desired memory effect. However, there is no built-in discrimination component in this technique. A child remembers a word solely on the basis of its M value and may have no concept of its graphemic characteristics and their relationships to its identification. The child will recognize the word skeleton, but not because of the visual and auditory code imbedded in its spelling.

For this reason, the language experience approach has a limited, but very useful, application to the teaching of sight words. It is useful because children do remember high M words without a great deal of painful and discouraging repetition. Therefore, the child who needs to feel the glow of accomplishment from successfully learning a stock of words can logically be taught through language experience. But, such a child will be limited in the kinds of words he can read and will not necessarily be cued to the reading-spelling code of letters, their sounds and positional qualities.

In order to most effectively individualize this technique, the teacher must be prepared to elicit and write both words and stories from each of her students INDIVIDUALLY.

While many times groups of children prepare group stories that are read as a group, having each child learn his own words and stories is more effective.

This can be a very time-consuming process for the teacher. A child is called to her desk where he is asked what word he would like to learn to read. With a minimum of guidance, she helps him discover a word that seems to possess that magic M quality for this child. She then prints it on a small card, identifies it for the child, has him repeat her identification, and then directs him to put the card in his pocket so he can read it any time during the day. If the word is sufficiently meaningful and if it is examined and correctly identified at random throughout the school day, the chances are good that it will be recognized instantly by the next day's reading period.

Now the word is built into a story, perhaps of only one sentence. This story is also printed on a card and "read" by the student. It too is carried in the pocket or taped on the desk for practice during the day. The teacher may even arrange to have the story read to some younger class by her student. On succeeding days, the key words are written into new sentences and stories, and day by day new words are added to the child's sight vocabulary. Hence, he becomes a reader without ever meeting Dick and Jane. Instead, his stock of sight words might include dinosaur, knife, praying mantis, babies, or blimp.

Theoretically, a child taught exclusively through language experience will not be able to read sentences, since many of the words in a sentence will be low in M value and therefore not remembered. These words are normally the function or syntax signals in English writing. Such words as a, the, begin, any, through, what and so on, constitute a group of basic sight words that seldom have even minimal association value to a child. In theory, such words have such a weak association value that they will not be learned as components of a language experience program. In practice, however, this is not so, because many of these words are learned through the reading-writing activities involving more potent words. However, in teaching these sterile function words, it would seem prudent for the teacher to couple language experience with other teaching strategies, such as those previously described. Teachers should consider the Dolch list of basic sight words as belonging in the category which requires teaching strategies more specific than language experience.

Summary of the Psycholinguistic Strategy

The language experience techniques for developing a sight vocabulary of instantly recognized words is based on a psycholinguistic condition that produces memory for specific kinds of words. This strategy does not, however, possess those discrimination features so vital for the total paired-associate learning condition. Therefore, this

strategy suggests a limited application to sight word learning and must be coupled to other, more complete, teaching strategies. While every classroom in the early elementary grades has a child or two who would find in this program both the motivation and success necessary for a sustained effort in learning to read, the teacher must be aware that its use has concomitant problems which must be handled. Teachers should use this technique where and when it is appropriate, being certain to supplement it with other, more accurate, techniques for discriminating the English spelling code.

SUMMARY

The development of a sight vocabulary of instantly recognized words is the first step toward reading fluency. Although instructional strategies which influence this skill are numerous, teachers tend to limit these to rote drill and student selected cues. This is a mistake.

Instant identification of a word is a paired-associate task which contains two separate and distinct instructional components. First of all, it is a memory task and the teaching/learning activities must reflect this. Second, it requires precise discrimination and pairing between stimulus, or written word, and response, or spoken word. Instruction which reflects these two components will tend to produce better readers than that which does not.

Of the many techniques devised for teaching this skill, four seem to offer the greatest opportunities for success and individualization of instruction. They are:

1. Using the conditions of learning inherent in the paired-associate task. The teacher who can create and control; attention to the discriminator, accurate response to the discriminator, feedback to the student, and repetitive practice of the discriminated response, will produce students who have large sight vocabularies.
2. Multi-sensory learning activities in which words are learned through the senses of sight, sound, touch and movement. This instructional strategy contains both the discriminative and memory components so necessary for fast and accurate word identification.
3. Memory strategies based on letter-sounds which act as bridges between the visual word and its spoken form. These letter sounds, especially in first, last, or medial word position, can both cue the learner to the discrimination system and act as mnemonic devices to trigger memory for the word.
4. Language experience activities which build a sight vocabulary because of the response potency to the words being learned. While this technique does produce strong and immediate memory for words that have meaningfulness to the child, the discrimination component is weak and should be supplemented with learning activities found in the other three instructional strategies.

With these four techniques and an effort to match the child to the one or two which seem to work best with him, a teacher can individualize her sight word instruction and help all children develop an adequate sight vocabulary of instantly recognized words.

CHAPTER FOUR

TEACHING STRATEGIES FOR MEDIATED WORD IDENTIFICATION

In Chapter Two, word recognition was described as a dual task involving both instant and mediated components. This description reflects the fact that good readers have a large store of sight words available for instant retrieval, and that they also know how to use one or more problem-solving activities to attack a word they have not seen before in print. These latter activities are mediators which the child applies to a strange word in order to "make it talk."

TYPES OF MEDIATORS

There are numerous mediators. For example, when a child comes to a word he cannot instantly identify, he can use strategies such as the following.

1. He can be told the word. In this case, the mediating skill is based on how well the pupil can train his teacher or the children around him to respond to his needs and tell him the word. Some children become very adept at signaling this need for an identification and build a very sophisticated core of mediators such as parents, teachers and fellow students.
2. He can look it up in the dictionary. In this case, the skill at using the pronunciation key, with its accents, diacritical marks, and strange letter symbols is the mediating behavior that leads to a recognition of the word.

3. He can sound it out. Here, the teacher is telling the child to use the word's letter-sound values which, when accurately generated and blended, can serve as mediators for its recognition.
4. He can "look for little words in the big word". This mediating strategy assumes that an unrecognized word will have structured units hidden in its spelling and that the recognition of these little pieces will allow for some orderly expansion into a recognition of it.
5. He can guess at the word by determining whether it makes sense in what he is reading. This type of mediator uses the context of a phrase, sentence, or even paragraph to suggest an appropriate word to close that context.

Determining a Mediator's Effectiveness

While each of these mediating activities can give the reader an identification of the new word, not all of them are equally attractive or appropriate as attack techniques.

The criteria for judging a mediator's effectiveness include three variables.

First, is it independent; that is, can the reader apply it by himself without outside help or cumbersome paraphernalia? Reading is an interaction between a child and a book. A mediating strategy for identifying new words must honor this singularly mutual relationship.

Second, can the attack technique be used quickly? If the mediation becomes too long and involved, reading itself becomes so slow and laborious as to preclude a continuing effort and/or understanding of the material. Persistence should not be stretched beyond reasonable limits lest the point of the reading be lost.

Third, is the attack technique accurate? If the child solves for the unknown word but gets the wrong answer, then the technique has little value in his reading skill repertory.

Applying the Criteria

In applying these criteria to the five previously identified mediators, we find that some of them have limited value in a reading skills program. For instance, the criterion of independence eliminates as a potentially useful mediating skill both the helper who tells the reader the unknown word and the dictionary. Neither meets the need for self-containment.

The speed factor also makes the dictionary an undesirable mediator. The child who is constantly running to and thumbing through a dictionary for identification help soon loses interest and understanding in what he is reading.

The accuracy criterion is a very delicate and confusing one. Certainly, both asking someone who can already read and using good dictionary skills produce precise identification. However, the remaining three skills of sounding, structuring and contexting an unknown word, while meeting the criteria of independence and speed, produce subtle difficulties in accuracy depending upon the word being analyzed. Despite this problem the latter techniques are to be preferred because they reflect the written code systems used in English.

The Writing Codes and Their Degree of Accuracy

As previously described, word analysis is problem solving for an unknown word. In its most usable form, the mediating strategies should be based on the fact that reading is a series of written codes. The child who knows the codes can decode any unknown word providing the codes are accurate in their representation of the spoken word. Unfortunately for a beginning reader, this is not always the case.

The English writing code is based on three separate but related coding systems. The use of an alphabet, in which letters represent speech sounds, is a phonemic system. A child who "sounds" a word is indicating his understanding of this system and its use as a mediating strategy. Unfortunately, English spelling has borrowed from all sorts of languages and the correspondence between letter and sound is not one-to-one. For example, the sh sound as heard in the word ship can be represented sixteen different ways in the English spelling system. The accuracy that can be predicted from sounding reflects this characteristic. Consequently, one must realize that the sounding code may result in an approximation of the spoken word which may be either very close or very distant from its actual pronunciation.

English writing also contains a system by which words are built upon blocks of meaning. These blocks are usually identified as prefixes, suffixes, compounds, and roots. They, too, have only partial reliability as a word predictor.

The child who looks at other and sees the "little words" the or her or he is violating this code system because he is not using accepted meaning blocks.

Finally, English has a code system based on the syntactic structure of its phrases and sentences. This code is called context and it too has the possibility for inaccurate word analysis. When a child uses this system to guess a word, large inaccuracies may result even though the meaning of the sentence shows little distortion.

Each of these codes, the sound-spelling system, the morphemic word-part system and the context-sentence meaning system, is an approximation. Some words can be mediated perfectly when one of these systems is used and remain unknown or misidentified when using another. These systems are independent, fast, and can be accurate on specific words. Not only must the teacher teach these skills, she must also recognize that each has its exceptions. Consequently, she must either teach her readers to move from an approximation to the real word, or she must create flexible readers who try one code-breaking strategy and, if no identification occurs, immediately apply either or both of the remaining strategies. In this way, vagaries of the three coding systems can be successfully handled and accurate identification will take place.

Summarizing the Types of Mediators

When measured by our three criteria, we find that only the skills of "sounding", "structuring" and "contexting" remain as viable mediating strategies for attacking an unrecognized word. This sounds as though teachers should ignore dictionary skills and never tell a child a strange word when he is reading. This is not so. Dictionary skills do give a child many options for instruction in word meaning, pronunciation and so on, but these skills can never replace the other word analysis techniques which are code-based and less time consuming. Similarly, a teacher has many necessary and appropriate opportunities for telling a child an unknown word. But, if she allows this expedient behavior to divert the child from developing independent mediators based on the written code, she is not teaching the child skills which he needs to be a fluent reader.

CONTEXT AS A MEDIATOR

Context is the skill of making closure. It functions in reading because the English syntactic system has built-in relationships and redundancies which allow a listener to predict the content and direction of a sentence before he hears the whole thing. Simply stated, a reader can stop at a word in print which is new to him and, by recalling the gist and direction of the message as received in the recognized words, he can predict the unknown word as one that

makes sense and thereby "closes" the sentence. This is frequently a very efficient and suitably accurate way to mediate a strange word.

However, definite prerequisites are necessary for context to be successful. For example, the language background and sentence sense of the reader who uses this technique must include the syntax of the sentence being read. A child who speaks and hears a dialect that does not contain the sentence structure being read has a reduced chance for successfully predicting the unknown word.

Similarly, when the sentence contains a number of words that are strange in print, its direction remains unclear and closure is impossible. The reader must recognize enough words to set the context frame for the word which is unknown. Recognizing these limitations, this skill still offers speed, independence, and sufficient accuracy to be taught as a useful mediating strategy.

Teaching Context

In teaching the skill of context analysis, the accuracy of the technique can be improved by showing the reader strategies that successively limit the number of words that can fit a sentence structure. This can be done in several ways.

The predictive impulse is most effectively generated through oral activities in which the teacher cues the student to "finish what I want to say." This type of oral game can

be played with preschool children and serves to alert them to the thinking that can produce closure. The object here is to acquire a learning set that both encourages a child to think about what he is hearing and to project an ending that makes sense both in terms of the meaning and the grammatical elements of the sentence. In such a game, any contextual closure the child makes which meets these two conditions is satisfactory. There is no attempt to limit responses to what the teacher had in her mind regarding the sentence content. As long as the child's word makes sense and is grammatically correct, the behavior is encouraged. Responses that distort either of these criteria should be corrected by the teacher and repeated by the child. Such corrections must be made in a supportive and nondirective manner, recognizing and accepting the sophistication level of the child's grammar.

As the child develops his skill in this activity, the teacher can show him how to make a more accurate and limited choice by using the words that follow an unknown as well as those that precede it. She might speak the sentence, "I gave my dog a _____. " At the first stage of context skill, anything you might give a dog is an appropriate closure. Bone, candy, bath, kick, haircut and so on are all good predictions. However, by directing the child to listen as you say the rest of the sentence that follows the unknown word, the context choices are limited. Adding the phrase "to chew" cancels the possibility of bath, kick and

haircut. This activity shows the child how to skip the unknown word and use both the words in front and the words behind to eliminate many possible word choices.

A third type of accuracy training can be applied as quickly as the child develops skills in letter-sound associations. If the kindergarten program includes this instruction, the child can be taught to use the sentence sense generated by the words that precede, the words that follow, and the first sound of the unknown word. In our sentence about dogs, the child who cannot decide whether the unknown word is bone or candy can be cued to the letter sound of b. Now, the best closure using all three cues is the word bone. This is as precise a response as can be made with this context and letter-sound mediator. The fact that other words such as biscuit and bacon rind, could fit this context simply illustrates that the approximation inherent in context mediators is less than perfect.

As the child learns to read, oral games can be replaced with written ones. Skill lessons can be duplicated in which the three levels of cueing (context from words leading to an unknown, context from words following an unknown, and initial letter-sounds) are all applied in a reading setting. Interesting variations of these drills can be created using blanks, nonsense words, and so on as the unknown.

The teacher's responsibility for this skill is finally complete when the child applies it to the analysis of unknown words in his daily reading. As a child reads and meets

strange new words that he has not memorized, she cues him to:

1. guess from what the sentence says;
2. guess from what the sentence says and use the first letter sound;
3. skip the word, read to the end of the sentence, and guess its identification; and
4. skip the word, read to the end of the sentence, check its first letter sound, and guess the word.

Summarizing Context

Use of the word "guess" suggests an imperfection in this mediating system. As described previously, "guessing" recognizes the approximation characteristic of all word analysis skills. The teacher's job is to acknowledge this lack of precision and then show her neophyte readers how to use the technique as systematically as possible, simultaneously realizing that other mediating strategies involving the sounding and structuring codes must, in many instances, be applied for increased accuracy of the word identification. Contexting is fast and it is independent, but accuracy can suffer. The child who interprets context instruction as a freedom to string stories together using minimal word identification cues must be corrected through attention to the creating of a large stock of sight words and the substitution of other word analysis mediators which have less "story-guessing" potential.

PHONICS AS A MEDIATOR

The second mediating strategy for attacking an unknown word is based on the letter-sound system of English spelling. While this skill of sounding out words is potentially the most useful tool available for word analysis, it is also the most controversial and difficult to learn. To effectively teach this skill, a teacher needs to have answers to the questions, "What phonics and how?"

The Types of Sounding

The question of the kind of phonics a child needs to learn for effective word identification is one that generates multiple and conflicting answers. On the one extreme are those programs and their advocates which stress a letter-by-letter sounding followed by blending of these sounds and a resultant approximation of the spoken word. These programs have honestly earned the name of "grunt and groan" phonics. At the other extreme are those programs which focus not on individual letter sounds but, instead, see groups of letters which share responsibilities for their sound values. The development of these programs were generated by the linguistic theory of Bloomfield¹ and have culminated in such

¹Leonard Bloomfield and Clarence Barnhart, Let's Read A Linguistic Approach, (Detroit: Wayne State University Press, 1961).

commercial programs as the McGraw-Hill programmed texts.

Sounding Letter-By-Letter

When a teacher cues a child to "sound it out," the result is usually a letter-by-letter attack. This represents one of the major confusions in word recognition instruction since most programs do not teach this approach. There are only a handful of phonics programs, such as ITA, Distar, and Alpha I, which are based on this letter-by-letter activity.

To successfully handle the irregularities between speech sounds and their English spellings, these three programs have adopted an augmented alphabet and/or diacritical signals. Thus, we find that ITA uses forty-four letters with each letter having only one English speech sound. DISTAR and Alpha I, on the other hand, have both retained the twenty-six letter alphabet but have made diacritical modifications for vowel sounds, or changed letter-size to signal silent letters, or squished together two consonants to signal a speech digraph. With these changes, a letter-by-letter sound system begins to function.

To work effectively, these systems demand both trained auditory memory and sophisticated blending skills. The child who can generate all the correct letter sounds, but is unable to remember them for blending into the word, has a useless sound strategy. Both the DISTAR and Alpha I programs teach these prerequisite auditory components with DISTAR

outdistancing Alpha I in both teaching techniques and percentage of successful readers.

Instructional techniques for learning the letter sounds can be best appropriated from learning theory. Again, as in instant identification, the task is one of paired-association. The letter is the visual component; its sound the auditory one. When the sound is associated to the letter, the learning has been made. The instructional model for teaching instant sight recognition described in Chapter Three, with its elements of attention, response, reward, and repetition is also appropriate for teaching the letter-sound skills. Simultaneous multi-sensory activities also fit this learning. Alpha I, for instance, uses both visual and auditory memory bridges in which the letter shapes are imbedded into pictures of "munchy mouths" (M) and "zippy zippers" (Z). The overuse of these devices, however, poses a potential hazard for the distractable child who might be diverted from the letter and its sound to the more stimulating pictures and curious names. A teacher must watch her learners very carefully to minimize such distractions.

In contrast to Alpha I, the prerequisite auditory skills of memory and blending have been successfully conquered by the DISTAR program. Their oral-aural activities of "spelling by sound", "rhyming", and "blending", which rely on a practical expansion and closure of a word and its component sounds, are nearly infallible. Children who are thoroughly

confused over the concepts of beginning and ending sounds and who are unable to blend together even two sounds show remarkable improvement with such a simple device as "say it fast, say it slow" in the DISTAR program.

In considering what phonics to teach, then, the first alternative is letter-by-letter sounding such as is found in the programs of ITA, DISTAR, and Alpha I. Children who have been taught by one of these letter-sound programs is cued to "sound it out" one letter at a time when they stop on an unknown word. The emphasis on auditory memory and blending provides the necessary tools to complete this activity.

Sounding by Phonograms

However, a child who is in the more traditional basal program, and this is the overwhelming majority of children in public schools, has not been given either the prerequisite auditory skills nor the modified alphabet so necessary for success in letter-by-letter sounding. To him, "sound it out" means a different set of behaviors which, while still built on the letter-sound system, require a different interpretation of the sound functions. For these children phonics implies a different sounding strategy with different prerequisite skills and a different instructional package. This strategy, based primarily on the linguistic theory of Bloomfield, is known as the phonogram sounding strategy.

This strategy has five primary goals. First, children are taught to sound the consonant letters and their blend

and diagraph combinations, learning to rely on these letters and their almost predictable sounds. These children know the name of the letter m and that it says mmmmmmmm, the diagraph sh and that it says sh-sh-sh-sh-sh, the name of the letter c and that it says either s-s-s-s-s or k-k-k-k-k. By teaching the child to sound only consonants, multiple sounds for one letter combination are minimized and the child develops confidence in the letter-sound system.

Techniques for teaching these consonant letter-sounds are identical to those described for letter-by-letter sounding. Use of an operant conditioning model, tracing and sounding activities, and picture clues imbedded in the letter shape like those used in the Houghton-Mifflin readiness program all are useful and can be individually prescribed for individual children. The success of this instruction is measured by how well the child can learn to make a consonant letter "talk" with its sound.

The second step in a phonogram sounding system is the auditory and visual concept of the beginning of a word. The child who lacks this beginning-to-ending orientation is left to apply his sound skills at his own discretion and will often skip around within a word, sounding first this letter and then that one in random order. Such behavior is often diagnosed as a perceptual impairment with causality rooted in some sort of neurological dysfunction. While this casual relationship does have some basis in fact, the vast majority of children who exhibit this scattered or "backward" reading behavior are

signaling to the teacher the fact that she has not effectively taught that very necessary and arbitrary convention of starting a word identification with its beginning letter and proceeding from there to its end.

As previously noted, auditory-instruction in the beginning and ending sounds can best be taught with the three sound skills developed in DISTAR. Spelling by sound, blending and rhyming instruction, as this program presents them, contain all the techniques and activities necessary for altering a child to the sound positions in spoken words.

Similarly, visual cues can facilitate a left-to-right habit of visual inspection. Underlining the first letter, color-coding it, and even marking the left side of a page so that the reader is instantly able to "see" the first letter as his initial identification cue can all be useful and appropriate techniques for helping the child get started with the correct visual system. These visual and auditory sequencing habits must be established if a reader is to have a continuing and successful achievement in word identification.

The third stage of instruction for the phonogram sounding strategy involves the generalizing of vowel sounds. Here we find the first major difference between "letter-by-letter" and "linguistic" programs. Where the letter-by-letter programs modify the visual characteristics of a vowel in order to signal the five or six sounds it can make, the linguistic programs teach the child to generalize a vowel sound by learning the spelling patterns that signal its sound. This

instruction is based on the theory that the sound of a vowel, standing by itself, cannot be predicted. The letter a, for example, can commonly sound like the a in aim, the a in apple, the a in car, the a in all, the a in was, or the a in predictable. The only way to know which sound of a is found in a word is to recognize the pattern of letters that surround it. It is these letter patterns, or phonogram families as they are often called, that give a vowel its sound value.

The teacher's task, then, is to teach these common letter patterns for each vowel. A drill that goes at, pat, cat, fat, mat, sat and so on, is teaching a high speed recognition of the vowel-consonant pattern which generates a short sound of a. Similar exercises teach the other short vowel sounds found in a vowel-consonant spelling pattern. A sentence that reads "Can a pig dig?" is giving the learner regular, repetitive practice at sounding a short vowel spelling pattern.

Whether to teach a particular vowel phonogram depends upon its regularity and frequency. Thus, we find that even though a vowel phonogram may always make the predicted sound, it may only occur in five or six words in all the reading materials a child will use in grades one through six. In this case, practice in learning this vowel pattern would be wasted since its application is so rare. Since such an analysis of utility and frequency of occurrence is beyond the scope of the typical teacher's time or competency, she should follow the skill sequence for vowel patterns found in any

reputable skills program.

The fourth step in teaching a child to use letter phonograms for analyzing an unknown word is the "consonant substitution" skill. Its purpose is to show a child that when he knows a word at sight, he can know many other words by simply substituting letters within that word. This activity illustrates the transfer effect of vowel phonograms. Through substitution, the child who recognized the word can is led to generalize its relationships to tan, pan, man, ran, ban and so on. As this skill is habituated, ending consonants can be substituted, creating such new words as cat, cap, cab, cam, and so on. Finally, the child is led to see that such words as sand and hand are mutations of that original short vowel phonogram found in the word can. In all cases, whether substituting beginning or ending letters, the vowel sound remains constant and the concept of vowel phonograms or "vowel families" is established.

With the phonogram sounding strategy, the child learns two important sounding concepts. First, he realizes that by knowing one word and some consonant letter sounds, he can know many other words. Second, he begins to understand the spelling code which signals vowel sounds and the transfer of this code to all phonogram units. The substitution skill is a powerful one that teaches the child to analyze the unknown by using the known.

Sounding by Syllabication

This final phonics skill teaches the child what to do when he faces a word made up of many letters. Being able to read only words such as at, in, can, ball, came and so on is not sufficient for even the lowest level of reading materials. The child must learn a useful tool for separating a long string of letters into smaller units which can be sounded. For the letter-by-letter systems, these units are each separate letter; for the child in a more common basal or linguistic program, they will be the vowel phonograms. The child who has been taught to separate a long word into its vowel phonograms units need only sound these units and blend them together for an approximation of the spoken word.

The skill of dividing a word into its vowel phonograms is usually identified as syllabication. For simplicity, teachers should emphasize that whatever its name, the strategy consists of isolating the vowel phonograms which make up the total word. Rules for doing this are difficult for a child to interpret and to apply, but separating long words into vowel phonograms minimizes these difficulties.

While syllabication has both visual and auditory components, initial instruction should direct the child to the auditory one. Here the teacher is attempting to establish the concept of "pulse" or "beat" within the words. This is most easily done by emphasising the pulses or syllables with both the voice and hand claps when pronouncing

long words. The child should be able to hear these sound units before being directed to look for them.

The visual component of syllabication usually means a long series of rules which seldom can be applied to break a word into soundable units. Just as good readers intuitively seem to see these long words in their correct patterns, so the poor ones strain to make a fit between some memorized rule and a recalcitrant word which keeps bucking the rule off. This happens because linguists and reading educators try to describe all the possible conditions that can influence a syllable division which, while interesting to the linguist and the reading theoritician, become just too clumsy and laborious an effort for the budding reader. He needs a quick and relatively accurate technique for approximating the visual units that signal these spoken syllables.

Recognizing the need for speed and a useful approximation of the spoken syllable, syllabication can best be taught as a three step activity that focuses itself on isolating the vowel phonograms. A child should be taught to proceed as follows.

First, he must identify each vowel unit. This can be done by underlining or putting a dot above the unit. A vowel unit will be any single or double vowel, recognizing the use of w and y as well as a, e, i, o, and u. This vowel unit is the focus of the syllable or phonogram.

The second step is to simply attach the following consonant to that vowel unit by drawing a line after it.

This places each vowel into a short vowel phonogram family and the word can then be sounded.

If this approximation does not signal a real word (that is, if the reader does not sense a fit between his sounding and a known word), he goes to the third step, moves the line to the left of the consonant, and tries again. Now the vowel phonograms are producing the long sound and again the reader is directed to listen for an approximation to some known word.

If after trying the three steps there is still no recognition of the word, the teacher can be pretty sure that the word is not in the child's listening or speaking vocabulary or that it has sound and accent variations that require a more complex and sophisticated syllabication-sounding skill. In either case, neither the child nor the process is at fault. In the latter, the word is simply too difficult and the teacher should identify it. In the former, the teacher must recognize that words not in the speaking-listening vocabulary of the child can seldom be successfully attacked with this or any sounding-syllabication procedure. Consequently, if a reading selection contains a word which is new, the teacher should have the child speak the word and attach some meaning to it without ever involving the reading act. This will usually provide sufficient familiarization for the child to complete the sounding approximation when he meets the word in his reading.

The syllabication process can be illustrated as follows.

While reading a child comes to the word millimeter, which he does not recognize. He underlines all the vowel units, millimeter. This suggests four syllables. He then connects each vowel with the consonant following the vowel, as in mil/lim/et/er. This produces the short vowel phonogram for the first three syllables and an r-controlled vowel on the fourth. With normal pronunciation, only the et syllable is distorted from a correct pronunciation. If the reader has the word millimeter in his speaking or listening vocabulary, this distortion should not prove a problem for recognition. However, if the signaled approximation is not recognized, the child moves the divisions to the left of each consonant producing the following division and pronunciation: mi/lli/me/ter. Now the first three vowels are long and the final ter is still r-controlled. Again, the reader pronounces these syllables and attempts to match a known word. If he is still unsuccessful, the word is not in his speaking vocabulary and prior ear training will be needed before he can analyze it.

What this syllabication procedure gains in speed and utility, it loses in precision. However, recognizing that the only alternative to this simplified approach is to teach the application of cumbersome and often arbitrary rules which attempt to regularize all the exceptions and artifacts of English spelling, teachers and students will find hope and success in this device. English spelling is, at best, an approximation of English speech. To treat it as if the fit were perfect, whether in single letter sounds or in syllables,

is to ignore the realities of the system. It is better to teach the simplified essentials and the approximation characteristics and let the child's innate language bridge the gap, than to forever confuse the issue and the child by trying to make a precise fit out of a system that only approximates.

Summarizing Phonics as a Mediator

Teaching a child to understand and apply letter sound for instant and mediated word identification can be a long and frustrating experience. The teacher is constantly faced with the idiosyncracies of spelling and sounding which, if allowed to run rampant, can forever cloud the child from this most basic and important system in reading. Instructional decisions must reflect this awareness of the inherent inconsistencies and still not lose sight of the basic concepts of a letter-sound coding system. The preceeding suggestions are useful in their application to reading. The lack of precision is not serious when the teacher flavors her instruction with the approximation characteristics of the English sounding code. The result will be children who can and do operate on unknown words, always testing their results against real, spoken words and knowing that the fit, while not perfect, is close enough for accurate recognition.

STRUCTURE AS A MEDIATOR

The third and final mediating strategy for figuring out an unknown word is structural analysis. This problem solving technique is based on the morphemic characteristic of English by which words are compounded or modified through the addition of affixes. The child who understands this concept of the morphemic "building blocks" which can be attached to or removed from a word and who can apply this understanding as a word analysis skill has a very quick and accurate method of mediating many words that are strange in print.

Describing Structure

The structures most often encountered and having the greatest utility for word analysis are prefixes, suffixes, the root word to which these are attached, and compounds. When a child has been taught to examine a strange word for these very obvious and predictable meaning units, pronunciation of the word should come quickly and accurately.

Training in the use of prefixes and suffixes cues the child to look for familiar letter patterns such as dis, un, ly, ing and so on at either the beginning or ending of a word. When these are found and pronounced, the root of the word is all that remains to be identified. If the root is not instantly recognized, sounding strategies, and in some few cases a context effect, will give the necessary clues to its

pronunciation. The important point here is that the child is provided with a technique for breaking a long string of letters into smaller, more manageable units of recognition. Syllabication skills learned as a sounding strategy can produce the same result as the identification of structural units but, because meaning structures occur in key spots (at the beginning and ending of words) and have a relatively high frequency of occurrence, the child can be taught to see and say these units more rapidly as structures than as syllables.

Learning to see and say compounds follows a cueing pattern similar to the one described for affixes. The major difference is that compound elements are identified and pronounced as words which can stand alone. This may lead the child to look for little words in big words, a behavior which is sometimes correct and sometimes incorrect. The object in teaching compounds is to help the child see the largest recognition unit in a string of letters.

Teaching Structure

The teacher's instructional responsibility in the area of structural analysis is two fold. She must select the structural units to be taught and then insure that they are both learned and applied as analysis skills. In deciding which prefixes or suffixes should be taught, a teacher need only examine the glossary of new words in her basal series or the workbook exercises that accompany it. Here she will

find those words that have structural analysis possibilities and the structures that need to be learned for these words. As reading skills mature, she may want to search out lists of prefixes and suffixes which can be examined and applied in isolation from the daily reading materials. However, this would be done only after the concept of structure and its application is already habituated by the learner. Memorizing lists of prefixes and their meanings when these lists have a very limited application to the daily reading vocabulary is a tiresome and ineffective procedure. Pre-viewing the day's lessons in reading, math, and social studies to glean such units is a more feasible way of deciding what to teach.

Instructional techniques should reflect both the visual and the meaning components found in the structure. The visual cues can best be illustrated through pairing a root word with its inflected or derived form. The visual difference, be it prefix, suffix, or compound, can then be underlined or color coded to isolate it from its root. Auditory identification of the root plus affix, or the paired roots in the case of compounds, should serve to create an association between the visual form of the structure and its sound. Other paired examples can then be supplied to enhance the generalizing process. The child who recognizes and identifies the ed ending in wanted should be able to apply this analysis on any other known verb with an ed suffix.

Because each of these structural units has an effect on the meaning of a word, the meaning effect should be used to enhance the application of these units in structural analysis. It is a wise teacher who teaches not only the visual identification of these structures but also examines the meaning of each. When the prefix un is learned as both a sound unit and a signal for not, analysis of a word containing this prefix, when the word is found in a context, is both faster and more accurate. Again, the teacher should pair the root word with its structured form and discuss the effect on meaning of the ed, un, s, and so on. In this way, meaning becomes a useful corollary to the application of word structure in mediating an unknown word.

Summarizing Structure as a Mediator

Word structures can be very fast and accurate mediators for analyzing an unknown word. Those most commonly taught for this purpose include prefixes, suffixes, roots and compound words. Teaching activities are similar to those used in syllabication and phonogram substitution. However, because prefixes and suffixes occur either at the beginning or end of a word and have regular spelling patterns, they can be taught as independent units having both sound and meaning components. Because they are relatively few in number, have regularized pronunciation, and can be memorized as sight units, recognition of unknown words which have these appendages is greatly facilitated.

Analysis of compound words requires a parallel strategy to prefixes and suffixes, except that here the child is attempting to spot known words as they are found in a compound. The searching strategy for successful analysis of a compound word must be directed toward the largest known units. This is a counter to merely looking for little words in big ones.

The child who can separate an unknown word into these morphemic structures and recognize both their sounds and meanings has made a giant step toward reading fluency.

SUMMARY

Mediating strategies used for word analysis purposes must meet specific criteria before they are taught. These include speed, accuracy and independence. Of the many possible ways for figuring out an unknown word, only three meet these criteria. These are context analysis, sound analysis, and structural analysis. The development of these skills into functional reading behaviors demands accurate and intensive instruction. This instruction will produce numerous small and isolated reading behaviors which must then be applied to analyzing unknown words.

This application step will serve to unlock for the child the three code systems which operate in English written communication. These are the contextual or meaning system, the phonetic or sound system, and the morphemic or

structural system. The child must understand that his analysis skills are useful only if they relate to one of these systems and are appropriate for figuring out an unrecognized word. Isolated word analysis skills have no value in and of themselves.

A primary confusion over the value of various word analysis techniques and skill programs is the result of the approximation characteristics of the three decoding systems. The good teacher produces readers who understand that when they make letters talk or guess at words from context, the resulting identification may not be perfect but can be modified into the correct word identification. The teacher or child who expects perfection in the contextual, phonetic, or structural codes will find only confusion and delayed reading progress.

CHAPTER FIVE

SUMMARY, IMPLICATIONS, CONCLUSIONS

This paper describes a simplified approach to the decoding aspect of reading which is based on a task analysis of this process. The summary of this approach, its major implications and a conclusion follow.

SUMMARY

Whether we like it or not, learning to read is a critical skill for both school and post-graduation success. Further, and in spite of the pessimisms of Holt, Postman and others, reading is a task which, in the large majority of cases must be taught. Recognition of this fact, coupled with a failure rate that varies from ten percent in "average" schools to as high as eighty percent in some urban areas has produced an hysteria over learning to read, which in turn, has resulted in theories, explanations and reading programs of every kind imaginable.

These efforts have not been matched by concomitant achievement gains because they tend to ignore the teacher's role and decision-making capabilities as well as the individual differences and learning styles of children. In the

final analysis, it is the individual teacher who must face the responsibility for what and how her children learn to read. This means she must have both knowledge about the reading process, instructional capabilities for individualizing the various aspects of this process, and the confidence to apply these as they are needed.

This most confusing stage of reading instruction for most teachers is the decoding activity. Helping children handle the alphabet and its letter-sound symbol system appears to trigger the biggest failure in the developmental reading process. This paper describes the decoding skill as a dual process involving both instant and mediated identification of words. Thus described, criteria for instruction are established and teaching strategies are defined and described. For instant identification these include 1) the use of a modified operant conditioning model, 2) multi-sensory strategies, 3) memory strategies based on cued discriminators, and 4) language experience activities. For mediated identification these include 1) using contextual closure, 2) using letter-sound values, and 3) using morphemic structures for attacking an unknown word. For simplicity, the key element in the mediated techniques is the concept of approximation, which eliminates the need to teach and explain every irregular or rare sound-spelling pattern.

In brief, this paper emphasizes that word identification is a dual task. Each of the two parts have specific

objectives and teaching strategies which must be utilized in order to individualize word recognition instruction.

IMPLICATIONS

This paper has five major implications. They include:

1. There is no single way to teach reading to all children;
2. Successful reading teachers, must understand the learning processes inherent in the task (such as the instant and mediated processes in decoding) and the instructional implications of these processes;
3. Teachers must be trained to both diagnose and prescribe instruction based on observed pupil reading behaviors.
4. Diagnostic devices should be developed which can predict a match between the pupil, his mode of learning, and appropriate instructional techniques; and
5. Studies should be conducted to investigate the effect of instruction that cues a child to the approximation characteristics between speech and spelling.

CONCLUSION

This paper highlights the job of the teacher in helping children learn the word recognition component of reading. This task involves two separate and distinct goals, each of which has its own objectives and instructional techniques. It is in contrast to present reading theory and practice which tends to treat word recognition and analysis as similar

learning tasks and all children as identical learners who can be taught the same skills in the same way. For example, traditional "look and say" programs assume all children can generalize the coding system hidden in English spelling from whole-word memorization. Similarly, the linguistic programs assume that all children are capable of generalizing the coding system through consonant letter sounds and phonogram families. The language experience advocates assume that all children will generalize the code through memorization of words that are important to them, while individualized reading advocates assume that all children will teach themselves the code if self-selected reading materials are supplied. The most recent illustration of this polarization of reading instruction comes from psycholinguistic theory, which assumes that all children will learn to read the code if instruction is confined to its syntactical-semantic components. The problem with all these theories is that their advocates assume that success with one child predicts success with all children. This paper, in contrast, emphasizes the teacher's role as a decision-maker who tailors instruction to the individual child using the best of all programs. To do this effectively, she must take into account all aspects of the decoding process and its related instructional strategies. Only then is there a possibility for teaching all children to read.

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