This paper discusses some of the findings and needs of reading research. The areas of research study mentioned include word boundaries, letter names, preschool reading, teacher questioning, critical reading and Negro dialects. Researchers cited include Dolores Durkin, Frank Guszak, Jay Samuels, Guy Bond, A. Sterl Artley, Edward Fry, and Robert Dykstra. The needs in reading research, as they see them, are: to improve the quality of reading research, to increase the instruction in research in many universities, to cooperate with researchers in other disciplines, to increase the amount of research on methods of reading instruction, to improve the research in evaluating current and new approaches to reading instruction, to increase the research in the area of reading comprehension, to initiate further research in teaching reading to Spanish speaking children, and to increase the research conducted with average and gifted students. (WR)
NOTABLE FINDINGS

Many notable studies have resulted from the wealth of reading research that has issued forth in recent years. Some studies have been notable for their design, some for their statistical treatment, some for their uniqueness in choice of topic, some for their useful implications to the classroom teacher.

I have chosen the last category for discussion. While emphasis will be placed primarily upon findings that are useful to teachers, consideration also will be given to recency of date and freshness of research thrusts. In the time that I have at my disposal I will be able only to present a few samplings of studies whose findings meet these qualifications.

First, mention might be made of some recent findings which are notable mainly because they have shaken to the very foundations beliefs that have been with us for many years in regard to certain procedures used in teaching beginners to read.

Word Boundaries

One study yields surprising results in regard to our traditional concept of first grade children's ability to recognize words. As soon as a first grade teacher begins to teach reading she talks to her pupils about "words." It seems that they don’t know what a word is -- where it begins or where it ends.

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Meltzer and Herse (1969) attempted to find how 39 children who had been in first grade for two and one-half months defined the boundaries of a printed word. Although the study was limited in population and characteristics of the population, it is important in its implication. The children were asked to point to and count the words in a sentence, draw a ring around each word, and pick out cards that had numbers and words on them.

The investigators reported the following sequence in the development of the word concept: 1) letters were recognized by children as words; 2) a word was recognized as a unit made up of more than one letter; 3) a space was seen as a boundary separating words unless the words were short, in which case words were combined; 4) only long words continued to be divided and were seen as several words; 5) spaces were used to indicate boundaries of words except where tall letters appeared, in which case the tall letters were seen as boundaries.

Clay (1966) made studies of children's stages in learning to read, particularly in the area of oral reading. She also found that some children had difficulty in distinguishing between a letter and a word even at the end of their first school year, and that they were confused about the first letter in a word and could not detect an incorrect letter in the word order.

It would appear that instead of starting off the first-grade year talking about words and letters when children don't understand the distinction between these symbols, that it would be advisable for the teacher to give some instruction and practice in recognizing the concepts of words and letters. Furthermore, developmental stages in acquiring ability in making these distinctions might well be observed and these stages then used as a diagnostic tool in checking individual progress.
Letter-Names

Another jolt to tradition! There are some recent studies which are notable in that they cast reflections on the archaic belief that teaching children the names of the letters of the alphabet will help them in learning to read.

From the earliest days of reading instruction children have been taught to name the letters of the alphabet as the first step in acquiring the reading process. At the present time parents make sure that children can name the letters in their alphabet books and on their blocks, and pupils are taught to name the letters in many nursery schools and kindergartens as a part of their reading readiness programs.

Several studies have shown a correlation between letter-name knowledge and reading achievement at end of first grade.

And now to mention three recent studies which yield evidence to the effect that knowledge of letter names has no beneficial effect in learning to read!

D. D. Ohnmacht (1969) conducted two studies under experimental laboratory conditions to determine what component of letter-name training, if any, facilitates reading acquisition.

In experiment one, 100 pupils midway through first grade were randomly assigned to one of four treatment groups: (1) a letter discrimination group trained to discriminate one letter from another, with no names attached; (2) a letter-name group, given the same letters and trained to name the letters, (3) and (4) two control groups trained on an irrelevant task, learning the names of dogs.
Following the training all four groups were given the same transfer task, that of learning to recognize four words by the look-say method. The words were spelled making use of the letters used in training groups (1) and (2).

Comparison of the four groups on speed of learning the transfer task revealed by analysis of variance showed no significant difference.

The study was checked through a replication the next year, using a new sample of students and a new research assistant who was unaware of the previous outcome. The results were exactly the same; no significant difference in speed of learning.

Samuels also (1969) did an experimental study in which one group was trained to visually discriminate among letters. A second group was trained to name the letters. A third group served as a control. All three groups were given a transfer task of learning to read words made up of these letters. The letter-naming group and the visual discrimination group were no better than the control on the transfer task.

A doctoral dissertation was completed by R. J. Johnson (1969) at the University of Minnesota on "The Effect of Training in Letter Names on Success in Beginning Reading for Children of Different Abilities." This was a carefully controlled, well-executed experimental study. The results of this investigation also revealed that learning letter names had no beneficial effect on reading achievement.

An explanation as to why earlier studies have shown a positive relationship between letter-name knowledge and reading success may be found in the fact that these were correlation studies. The correlation findings between letter-name knowledge and reading may be a product of
some other factor such as intelligence or socio-economic status. None of the correlation studies controlled these factors. IQ is highly correlated with reading achievement, so is socio-economic status and home environment. Since these factors were not controlled we don't know whether it was the letter names or one of these other factors that produced the results.

While letter-name training is discounted by recent experimental research several studies indicate that letter-sound training docs have a positive effect, particularly when combined with other sub-skills of the decoding process.

So while in terms of these studies, simply teaching the names of the letters of the alphabet in itself appears to be ineffective, teachers should be apprised of the finding that learning the sounds of the letters along with the names is valuable in acquiring the reading skill.

Pre-School Reading

The longitudinal studies conducted by Durkin have dislodged a belief held by many for several years in regard to the possible bad effects of reading on young children.

A mental age of six or six-and-a-half years was considered to be the safe and desirable time for a child to begin close, functional contacts with reading symbols. It was thought that encouraging or teaching reading to a young child at nursery school or kindergarten level would injure his eyes, develop in him a distaste for reading, result in emotional difficulties, cause boredom when the child proceeded through the grades.

Durkin has conducted a series of studies (1959, 1961, 1964, 1970) with children learning to read before they come to school. The first
three studies were with preschool children, most of whom had learned to read from their mothers or older siblings. She followed these children through several grades after they entered school with appropriate observations and tests. None of these children suffered the harmful effects mentioned above.

These studies are significant in that they removed the barriers of harmfulness which caused many people to hesitate in encouraging reading or offering reading instruction to young children and thus they probably contributed to the present trend toward teaching reading in nursery schools and kindergartens.

Considered in the larger context of breaking down the traditional reading readiness assumptions in general, the Durkin study of 1959 served as a pioneer contribution followed by several other studies which revealed evidence to the effect that young children can learn to read. The accumulation of such studies are noteworthy in that they are countering the time-honored rule that beginning reading must start in first grade and then only with children who are six or six-and-a-half-years old mentally.

This whole question of readiness, however, is underlaid with numerous studies of individual differences showing great diversity in the abilities of young children. Durkin sums up this situation in the following statement (1968).

"To summarize, then, this question of when to begin reading is indeed a very complicated one. Essentially, it is concerned with the fact of differences among children of the same chronological age."
Questioning by Teachers

A flurry of studies are coming forth on questioning. These have to do with placement, frequency, and type of questions asked students by teachers on reading content. In view of recent surveys indicative of a much lower comprehension status in our schools than we should expect some of the findings of these question researches are worth noting. I will discuss two studies only, and these two will have to do with the type of questions teachers ask.

Guszak (1969) visited and recorded teachers' questions on assigned reading in second, fourth and sixth grade classrooms. He concluded: 1) that literal questions were most frequently asked across grade levels. 2) that more incorrect answers to questions were accepted as correct by teachers in the fourth and sixth grade than in the second, and 3) that the dominant pattern of interaction at all grade levels was a teacher's question followed by a single congruent response.

Floyd (1968) selected from administrative ratings the 40 best teachers in a city school system. He recorded a significant amount of verbal activity in these teachers' classes. "Of all questions asked 96% were asked by the teachers and only 4% by the 802 students. Only 5% of the teachers' questions demanded a thought answer, or seemed capable of demanding any stimulating reflection on the part of the students. Eighty-five percent of these questions fell into two categories—memory for facts, and information. Questions used almost never were those dealing with problem solving, the students' interests or for helping to locate students' problem areas in learning."
It is regrettable, indeed, that in accordance with the findings of the above and similar studies the great preponderance of questions asked by teachers on reading text are literal questions - questions that can be answered directly in the words of the book or by repeating from memory what the book says. There is no depth to this kind of reading. It is unfortunate, also that students aren't given more opportunities to ask questions and to discuss reading content.

Teachers know full-well that we should be developing the higher level thinking skills in students. Perhaps findings of studies such as these will call attention to the dire need for reversing the number of literal comprehension questions in favor of thinking questions designed to develop interpretation and critical reading, and to the need for giving youngsters, themselves, a chance to talk over reading content from different viewpoints.

**Critical Reading**

What happens when teachers really teach critical reading was revealed in the notable findings of Wolf, Huck, King and Ellinger (1967) in their study titled "Critical Reading Ability of Elementary School Children." This study was the first investigation of any magnitude to be conducted on this topic. It included experimental and control groups in all six grades and lasted a full year. Its findings revealed among other things: that groups of children receiving critical reading instruction made significant gains over the control groups on the critical reading tests even in the primary grades, and that children of all levels of intelligence profited from having instruction in critical reading. Results from several other smaller studies support the findings of this larger investigation.
The above findings are important in their implications because of the urgent need to teach critical reading in the elementary grades; the utter lack of instruction in critical reading in innumerable elementary classrooms; and the mistaken impression that primary grade children, and children with IQs of less than 100 are incapable of doing critical reading.

With research evidence before us we now know that critical reading ability can be improved with instruction in all elementary grades, and at all levels of intelligence.

The USOE Cooperative Research Program

The USOE Cooperative Research Program in First Grade Reading Instruction as reported by Bond and Dykstra (1967) resulted in some notable findings in itself, and in the follow-up studies which ensued with segments of the population in grades 2 and 3.

This program consisted of 27 individual projects located in different parts of the United States, using different methods and materials including basal, basal plus phonics, i.t.a., linguistic language experience, and phonic-linguistic.

Like many researches this program had its weaknesses but it is notable for being the first large-scale cooperative reading project to be conducted, and it did result in some worthwhile findings. These findings are too well known to be reiterated here.

I would, however, like to present the findings of the more recent follow-up second grade studies and third grade studies, together with the findings of the first investigation, for the purpose of considering the bearing which the results from all three of these sets of studies
have on the controversy concerning the decoding emphasis versus the meaning emphasis in teaching beginning reading.

At the end of the first year of experimentation the investigators concluded that the code emphasis programs tend to produce better results than the meaning emphasis programs represented in basal readers.

At the beginning of the second year, 13 of the 27 projects were continued for another year. The results of this second grade study (1968) indicated also that intensive teaching of sound-symbol correspondences appeared to be highly related to reading achievement.

However, when the third grade was reached researchers found a different situation. Eight of the investigators of the original 27 projects followed their pupils through the third grade. According to the results of this third grade study, the code emphasis in beginning reading did not show superiority over other methods. There was no overall consistent advantage of any of the methods studied when pupils were followed through to the end of the third grade.

Similar results have been obtained by studies in other countries: Morris (1966) in England and Müller (1966) in Germany. Both of these investigators conducted experiments in which groups of children were taught with intensive decoding methods in beginning grades and other groups by methods that placed first emphasis on meanings. Both found that by the time the children reached the middle grades the initial method of reading instruction made no difference in their reading ability. They read equally well in middle grades regardless of the beginning method used in teaching them.

These are notable findings for it would appear that factors such as administrative leadership, classroom facilities, teacher competence,
pupil intelligence and other pupil characteristics are more important than the method used in initial instruction.

**Negro Dialects**

Numerous studies are being conducted at present in regard to the social, cultural, economic, and dialectical relationships of the disadvantaged and reading. Notable findings might well be listed under each of these topics. However, space permits discussion only of one segment of one area, that of Negro dialects as one part of the larger area of non-standard English dialects.

Excellent studies have been made concerning the language systems of different cultural groups by Bailey (1965), Dillard (1967), Labov (1967) and Shuy, Wolfram, and Riley (1968). The works of these researchers should be consulted for detailed findings. Brief summaries of two notable studies in regard to Negro dialects will be presented.

Labov (1967) conducted an extensive study of nonstandard Negro dialects. Some of the more obvious differences in the sound system or phonological patterns revealed in his findings are given below:

He categorizes the phonological differences into three classes: *r*-lessness, *l*-lessness, and consonant clusters simplification. The *r*-less pronunciation refers to extending the vowel sound in certain words so that the vowel sound obscures the *r*-sound. For example, a lengthened vowel sound in either car or guard obscures the *r*-sound. Other examples which Labov uses to illustrate the *r*-less pronunciation are the centering glide sound or (sch w a) in place of the *r* in fear, feared, care, cared, bore, and bored.
The l-less sounds found in Negro dialect are illustrated in examples of homonyms formed by the following words: toll = toe, help = hep, tool = too, all = awe, and Saul = saw, fault = fought.

In the class of consonant clusters, the most general tendency is toward the simplification of consonant clusters at the end of words. Labov points out that there are two distinct tendencies among Negro speakers: 1) to reduce clusters at the end of words to single consonants, (past-pass), (rift-riff) and 2) a more general process of reducing the amount of information provided after stressed vowels, so that individual final consonants are affected as well. (She wow! = She wild!)

The grammatical differences between standard English and the non-standard dialect of Negroes have been summarized by Baratz (1966). Some examples of these differences relate to verb in number, form, tense, subject expression, and use of the pronoun and indefinite articles. In the Negro dialect, the speaker often neglects to use a linking verb. For "He is going," the speaker of nonstandard English says "He -- goin!" In the nonstandard dialect there is often a lack of verb agreement. For "He runs home," "He run home." The verb form is also different. "I drank the milk" becomes "I drunk the milk." In expressing the subject, the nonstandard dialect speaker often inserts a pronoun immediately after the subject. "Joe he live in Pittsburgh." In using the pronoun, the nonstandard dialect speaker often uses the third person pronoun in place of the first person pronoun. Instead of "We have to do it," it is "Us got to do it." When the nonstandard speaker uses the indefinite article, the a is not replaced by an in front of words beginning with a vowel. I want an apple is stated as "I want a apple."
The above are mere samplings of some of the phonological and grammatical differences in Negro dialects. Teachers of black children as well as teachers of Mexican-American, Indian, and white children who speak nonstandard English dialects should familiarize themselves with complete research studies that have been made in regard to language and the disadvantaged. Several excellent references are mentioned in this section of this article.

In the quotation below Labov (1970) points out the need for teachers of black children to understand their dialect.

"If the teacher has no understanding of the child's grammar and set of homonyms, she may be arguing with him at cross purposes. Over and over again, the teacher may insist that cold and coal are different, without realizing that the child perceives this as only a difference in meaning, not in sound. She will not be able to understand why he makes so many odd mistakes in reading, and he will experience only a vague confusion, somehow connected with the ends of words. Eventually, he may stop trying to analyze the shapes of letters that follow the vowel and guess wildly at each word after he deciphers the first few letters. Or he may completely lose confidence in the alphabetic principle and try to recognize each word as a whole. This loss of confidence seems to occur frequently in the third and fourth grades, and it is characteristic of many children who are effectively nonreaders."

URGENT NEEDS

The needs in reading research are numerous, indeed. In this paper we shall mention only a very few which appear to be particularly pressing.

Quality of Research

There is an urgent need to improve the quality of research in reading.
Wittick (1968) sums up the situation in this way:

"Little of the research in recent years has been conclusive; one study refutes another; the Hawthorne effect continues to plague projects; many of the studies are carried out (a) with a relatively small number of subjects, (b) over a short time span, and (c) with teachers often inexperienced in participating in research and sometimes poorly trained in the particular phase of the reading program under scrutiny. When an enthusiastic investigator becomes 'emotionally involved' in evaluating a pet theory, he may fail to remain objective and uncommitted." 115-116.

While there is some evidence that we are making progress in regard to the quality of research, many of us would agree that the above situation does still exist and that there is an urgent need for improvement.

Instruction in Research

More instruction in research is urgently needed in many universities. There will be an increasing demand for trained researchers in all branches of education in the future. Universities should be preparing to meet this demand of the future as well as taking measures better to meet the needs of their present students.

In addition to research courses for doctoral candidates, all students should at least have an introductory course in research so that they may be able to interpret printed accounts of investigation in periodic literature. However, large numbers of departments of education do not give a course in research or statistics even at the master's level.

All students should be familiarized with the possibilities of the computer in data-processing and in extending the range and type of problems that may be investigated. Students planning to do research
should be given actual practice in using a computer.

Universities might offer intensive summer workshops for school personnel in service who want to learn more about research or who wish to up-date their training. NCTE, IRA and other organizations might offer research workshops in the programs of their annual conventions and perhaps as a part of their local conferences.

Cooperation with Researchers in Other Disciplines

There is an urgent need for those who conduct research in reading to join with specialists of the other disciplines in conducting studies. Many specialists in other fields are taking an interest in reading at present. The psychiatrist, the medical doctor, the sociologist, the anthropologist, the linguist, the psychologist, and others are conducting research in reading from their particular vantage points. Often their researches would be improved if they might have more background in reading, and the reading specialists' studies often would be improved if they might have the counsel of specialists in other fields. Surely the contributions of specialists in the other disciplines should more frequently be sought and invited by reading researchers to broaden their perspective and possibly to pave the way for establishing interdisciplinary research centers for reading in the future.

Methods of Instruction in Reading

There is urgent need for more studies on methods of reading instruction.
Quoting from Herber and Early (1969):

"Artley (1968) reviewed approximately 180 studies only 28 percent of these investigated reading instruction. Summers reviewed 55 doctoral studies (1969), and of these, 42 percent investigated methods of teaching students how to read. The balance of the studies, in both summaries, investigated matters peripheral to the central issue: surveys of programs, factors useful in predicting reading success, attitudinal studies, investigations of interests in reading, readability studies, and the like. Moreover, if one were to exclude from the methods studies those for which a method of reading instruction was of secondary importance in relation to the principal factor being investigated, a factor such as attitude change or interest change, then the percentages are still lower. In Summers' review, for example, the figure is reduced to 29 percent."

We do have a few methods studies each year but the above quotation supports the conviction of many -- that researchers should be directing more attention to methods of instruction in reading.

Evaluation of New Approaches

We particularly need better research in evaluating current and new approaches to reading. Much controversy exists in regard to what are the most effective ways of teaching beginning reading. Evaluation studies are being criticized. Perhaps we have been placing too much emphasis on method at the neglect of the characteristics of the children who are using the method. Studies of child characteristics might reveal important interactions and show individual differences between children's style of learning and their success or lack of success in working with certain methods. This is something for researchers to find out through the use of improved designs, and techniques.

Higher Level Comprehension

We urgently need to have more research in the area of reading.
comprehension. The same favorite topics of investigation show up in considerable numbers repeatedly in annual reports of reading research but comprehension, although it is an exceedingly important aspect of reading, appears in very low incidence. As one example, reference might be made to the February 1971 "Reading Research: Yearly Summary", The Journal of Educational Research. In this summary under the heading "The Teaching of Reading" 10 studies were reported which had to do with tests and testing; and 12 were reported that had to do with word recognition and perception in which perception was related to word recognition. Only one study was reported on comprehension and that was at the college level.

If we are to prepare our students to live in the changing world of the future they will need to know how to think -- how to question, search, interpret, judge, evaluate, create ideas, solve problems. What better medium can serve our needs as teachers in developing these abilities than reading content?

While the question above probably would be answered in the affirmative by most people the fact remains that research information is still meager in regard to specific skills and sub-skills needed in the interpretation of reading content and in critical reading and creative reading. Some small beginnings have been made but we need much, much more research, particularly in regard to sub-skills necessary in comprehension involving the higher mental processes at all levels.

Once the skills in these different aspects of comprehension have been more definitely ascertained, then we need research in regard to methods of teaching them.

Language Background and Speech of Spanish Speaking Children

Research is urgently needed in regard to teaching reading to
Spanish Speaking children. A small amount of research in this area has been done but little national coordinated or long-term planning is in evidence, a very small number in the higher echelons of education are prepared or trained to work in development or public school research projects with these children.

Since beginning reading is based on language we need more precise, descriptive data on language behavior in Spanish speaking homes, both in Spanish and English in different geographic regions. Conceptual behavior of these young children also should be a subject of research. The specific prelearning tasks necessary in developing sequences of reading skills at different stages in pupils of Spanish speaking backgrounds should be explored. Which methods are best adapted to these children is a problem yet to be solved. Research to ascertain the reading interests of such students at different ages would be valuable.

Research with the Average and Gifted

More research should be conducted with average and gifted students. In our concern for the beginners, the disadvantaged and the remedial cases we are neglecting students of average ability and the gifted in our research explorations. Many students in these categories will be making special contributions to American life in the future. Their reading potential is great and they will need to use it to advantage. We should increase our research efforts in assessing their needs and in finding ways of teaching them how to read more effectually; and in many cases, we should be developing and guiding their reading tastes more efficiently than we now are doing. Much additional research in regard to teaching reading to average and gifted students might well be conducted throughout the grades and the secondary school.
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