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AUTHOR Smith, Nila Banton; And Others
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ABSTRACT

This monograph reviews research into the desirability and possibility of applying the readiness concept to all stages of growth in reading and at all levels of maturation in the elementary school. Chapters include "Readiness for Reading," which analyzes physiological, intellectual, emotional, social, and experiential factors involved in determining reading and language readiness; "Readiness for Oral and Written Language," which considers stages of development, environmental factors, and vocabulary factors in readiness for oral and written expression; "Readiness for Spelling," which discusses the dearth of research into readiness for spelling; "Vocabulary Readiness," which examines the size of children's vocabularies, the extent of vocabulary knowledge in a class of children, and approaches to increasing the child's vocabulary; and "Readiness for Handwriting," which explores motor coordination, visual perception, sequences in drawing, and sequences in the development of language. Each chapter contains a bibliography and a discussion of areas which need to be further researched. (RB)

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READINESS FOR READING AND RELATED LANGUAGE ARTS

A Digest of Current Research

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Prepared by a Committee of
The National Conference
on Research in English

Nila Banton Smith, Chairman
New York University

Helen Heffernan
California State Department of Education

Ethel Mabie Falk
Madison, Wisconsin

Henry D. Rinsland
University of Oklahoma

Althea Beery
Cincinnati Public Schools

*

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Readiness For Reading

NILA BANTON SMITH[1]

The growth and application of the reading readiness concept seems roughly to fall into three epochs of development: first, a long, slow period of evolution in which the idea was formulated; second, a comparatively short period of intensive application and investigation in the area of beginning reading; third, a gradual awakening to the desirability and possibility of applying the readiness concept to all stages of growth in reading and at all levels of maturation.

It is in terms of this third era of development that research will be reviewed in this article. Since reading is an ongoing developmental process, we shall not attempt to confine implications to the initial period of reading, but instead will strive to point out practical applications for classroom teachers at all levels of the elementary school.

Evolution of the Readiness Concept

Before summarizing scientific investigations, perhaps it will be enlightening as well as interesting to delve briefly into historical research for the purpose of finding out when and why and how the reading readiness concept so suddenly and generally and vigorously "took hold" in American schools. So recent is the readiness innovation that many teachers who read this article probably can recall the time when the term "reading readiness" had not yet entered our educational vocabulary, and when no provisions as yet had been made for implementing the idea in schools with which they were associated. On the other hand the younger teachers who read this summary of research probably will have integrated the term and concept so thoroughly into their total educational philosophy that they may find it difficult to realize that there ever was a time when all teachers were not acquainted with the idea. In either case the unfolding of the story may be a matter of pleasant and informative concern.

Historical research reveals that the modern concept of readiness for learning had its inception nearly two hundred years ago. During this long period of evolution the protagonists of child study were intuitively groping toward the convictions which more recently have been substantiated by the results of scientific investigation.

Rousseau (19) etched faint outlines of the readiness concept in his plan for teaching *Emile,* published in 1762. According to this plan he woud reject the formal teaching of the schools and educate Emile according to nature. Throughout his discussion one catches glimpses of crude beginnings of the readiness concept. This great fore-thinker said, for example:

> Allow nature to act in her place, for fear of thwarting her operations. You know, you say, the value of time and do not wish to waste it. You do not see that to make a bad use of time is much more wasteful than to do nothing with it; and that a poorly taught child is further from wisdom than one who has not been taught at all.

While Rousseau's ideas were purely theoretical, Pestalozzi, who had been influenced by Rosseau's thinking, actually initiated experimentation with children. As a result of this experimentation in two private schools, Pestalozzi scrawled bolder and more complete outlines of the readiness concept into educational thinking. In writing about Pestalozzi's system of education, Barnard (2) said,

"He (Pestalozzi) believed that educaton *in its essence consists* in the harmonious and uniform development of every faculty, so that the

[1]School of Education, New York University.

body should not be in advance of the mind, nor the mind of the body.....

He (Pestalozzi) aimed to discover the proper point for commencing the education of the young.....

In *How Gertrude Teaches Her Children,* (16) Pestalozzi said,

Not till after the foundation of human knowledge ..... has been fairly laid and secure would I begin the dull, abstract work of studying from books.

Froebel (8) and Herbart (14) each contributed additional ideas which strengthened the outline of the readiness concept and which straightened out some of the asymmetrical features in the contour of its design. As in the case of Rousseau and Pestalozzi, however, the emphasis on the readiness concept as we recognize it today was incidental. It did not stand out in bold relief. The same condition probably obtained in the experimental schools in which three of these leaders forged out their philosophies in classroom practice. Elements of the readiness concept were applied but the total concept seems not to have been pulled out in a clear-cut way for separate emphasis.

During the successive periods in which Pestalozzi, Froebel and Herbart were exerting strong influences on educational thinking in Europe, several American educators visited the scenes of their experiments. Upon their return to America these educators gave glowing accounts of what they had heard and observed, and urged that American schools adopt similar practices. The writer can find no evidence, however, to the effect that these returning educators specifically pointed up the readiness concept. This probably was due to the fact that the significance of this one concept was lost in the welter of ideas intertwined in the newer patterns of thinking about education in general.

Be that as it may, for many, many years school practices in regard to reading readiness continued on unchanged by the pronouncements of the protagonists. Teachers continued to start children on the weary road to formal reading as soon as they entered school, regardless of whether they were three, five, or seven years old. Starting school life and beginning to read were synonymous in expectancy and in practice, and all of the children in a certain grade were supposed to read a certain book equally well.

Then, finally, in the midst of our educational lethargy, there arose our own great philosopher, John Dewey. It is needless to make extended reference to the profound effects which Dewey's writings had on educational thought and practice in America. In so far as readiness implications are concerned, however, attention should be called to the fact that Dewey crystallized this concept and stated it in such vigorous terms again and again that educators could not fail to feel the impact of his convictions. What, for example, could be more direct and clear-cut in its pertinency than this statement from John Dewey, (6)

..... if education is the proper growth of tendencies and powers, attention to the process of growing *in the particular form in which it goes on from day to day* is the only way of making secure the accomplishment of adult life. Maturity is the result of the slow growth of powers. Ripening takes time; it cannot be hurried without harm.

It was during the first quarter of our present century that Dewey began to publish his important books, and that the significance of his teachings had their initial effects.

It was during this period also that the first specialists in the area of reading instruction began to make their appearance...specialists who were so gravely concerned about the improvement of reading instruction that they were moved to write professional books on methods of teaching this subject. Huey's *The Psychology and Pedagogy of Reading* (15) published in 1908 was the first professional

book on the teaching of reading. Others soon followed.

To add to the above influences, we find that during this quarter of century the pioneers of the scientific movement in education, (James, Thorndike, Terman, Courtis and others) were evolving procedures for conducting experiments, tools of measurement, and statistical techniques for interpreting data.

Furthermore, examination of educational literature published during this same quarter of century reveals complaint...frequent, recurring, clamorous, concerning the large number of failures in the elementary grades, particularly in the first grade. And there was more than "just talk." Investigations began to come through yielding undisputable data in regard to the appalling number of failures in the first grade.

In consideration of this cluster of factors, it is not surprising that the reading readiness concept began to take root in our public schools at the end of this quarter of century and that it blossomed forth into a new era of application and investigation during the years that immediately followed.

The quotation below appeared in the *American Annals of Education* (1) in 1837. One might almost think that the writer had the readiness concept in mind as one of the "new views" when his keen insight and foresight led him to write:

The new views [on education] usually have for a long period only a partial or local influence, and often fall back into forgetfulness. They are like the springs and rivulets of the mountains, fertilizing here and there the fields of an individual or village. It is only when they are embodied by some of those master-spirits, which Providence from time to time sends forth for this work, that they unite in one broad stream of improvement, which becomes the highway of nations and conveys rich blessings to extensive regions.

Thus it was with the readiness concept, which began to "unite in one broad stream of improvement" as applied to beginning reading shortly after the appearance of the Twenty-Fourth Yearbook of the National Society for the Study of Education (21) which was published in 1925. The authors of Part I of this yearbook recognized the "preparatory period" as one period of growth in total reading development, and devoted an entire chapter to this period, including in their discussion suggested procedures to use in preparing children for reading. This book was widely distributed and it undoubtedly exerted a very strong influence in initiating the practice of providing preparatory work preceding first grade reading.

In 1926 the International Kindergarten Union in cooperation with the United States Bureau of Education conducted an investigation on *Pupils' Readiness for Reading Instruction upon Entrance to First Grade.* (17) This was a questionnaire study in which teachers in all parts of the country were asked to give their opinions in regard to their pupils' readiness for first grade reading. This study brought reading readiness problems sharply to the attention of teachers in wide-spread areas. Its published results strongly focused attention on needs at the initial stage of reading, and probably served as a vigorous influence in bringing about immediate action.

It was in 1927 that Reed's investigation (18) revealed startling data to the effect that 1 in every 6 children failed at the end of the first semester in first grade, and that 1 in every 8 failed at the end of the second semester in first grade.

By this time school people everywhere began to awaken to the needs for attention to readiness at the beginning level. Educators here and there initiated experimentation in their attempts to meet these needs. The fire once kindled soon became a conflagration which at the present time has enveloped the vast majority

of public schools in the country. The idea is so generally accepted and applied at the present time that it is no longer an innovation.

The period of conquest for the application of the readiness concept at the beginning reading stage was comparatively short, historically speaking. This crusade seems to have begun early in the second quarter of this century, to have reached its zenith in the years 1938 to 1940, and to have been on the decline since that time. This generalization is based on the number of investigations carried on during successive years in this period of time, and the number of articles written in regard to this subject during this same succession of years.

An examination of Gray's summaries of investigations covering published studies in the field of reading reveals interesting trends. In his first summary (10) which appeared in 1925 no mention was made of any readiness investigations; nor was any mention made of such studies in the summaries (11) reported in 1926 and 1927. In the summary published in 1928, however, three studies bearing on initial reading readiness were reported. From that time on the number of such studies reported gradually increased, reaching their climax in the summary (12) published in 1940, when 22 readiness studies were included. Since that time the number has steadily decreased. In the summary (12) published in 1945 there were no reports of such investigations; in 1946 (12) there was 1, in 1947 (12) there were 2, in 1948 (none) and 1949, (12) there were (2) reports of published research in the area of readiness for beginning reading.

A similar trend is revealed in following through by years the number of unpublished studies (theses and dissertations) on the topic of readiness for beginning reading. Titles of such studies up to 1943 are included in *An Index to Professional Literature on Reading and Related Topics* (3) by Betts and Betts. These studies were tabulated by years. Volumes 10-14, 1943-48 of *Doctoral Dissertations Accepted by American Universities* (7) was examined as well as Good's (9) *Doctor's Dissertations Under Way in Education* for February 1949. In addition, letters were sent to 49 universities and teachers' colleges to ascertain the number of studies of this type conducted in their respective institutions from 1943 to 1949. The figures obtained through this last source may not be all inclusive but it is thought that they are indicative. Data gathered from these sources reveal that one dissertation bearing directly on readiness for beginning reading was completed in 1927. From that time on the number increased, reaching its peak in the years 1937 to 1940. Fourteen theses and dissertations on this topic were completed in 1937, 15 in 1938, 14 in 1939 and 12 in 1940. Following through to recent years, the writer can find evidence of only 2 such studies having been completed in 1947, 1 in 1948, and 2 so far in 1949. While these most recent studies are few in number they are high in quality and of genuine significance in that they deal with new and as yet unexplored aspects of readiness for beginning reading.

The number of articles written for periodicals during these years seems to conform in general to the same pattern as shown above for published and unpublished research studies. The first articles on reading readiness apparently were published in *Childhood Education* in January 1927. Two articles on this topic and using the term "reading readiness" were included in this issue. The *Education Index* (20) shows the titles of 2 or 3 readiness articles per year up until 1936 when the number jumped to 11. In 1936, 26 articles bearing on this subject were listed and in 1938, there were 25. The number has been decreasing since that time but not as sharply as in the case of published and of unpublished research. Thirteen articles on reading readiness were listed in the *Education Index* as appearing in 1947, 10 in 1948 and 3 so far in 1949.

A study of the figures above reveals that the number of articles, the number of published reports of research, and the number of unpublished theses and dissertations in regard to readiness for beginning reading were greater during the years from 1937 to 1940 than at any other time. The fact that the number of investigations and articles relative to this area of reading instruction has declined in recent years does not indicate that there is little or nothing more to be done at this important period of development. Several factors may have influenced this trend. In the first place World War II may have interferred with the stream of activities near 1940. On the other hand, the overwhelming majority of investigators and writers in this field have been women; furthermore, four years have elapsed since the close of the war and productivity has had time to resume its pre-war level if the same impetus existed. It is more than likely that several other factors are responsible for the ebb in research and writing related to readiness for beginning reading. First, the more obvious "first-sight" problems and those which lend themselves most easily to investigation probably have been explored. There are many of the more subtle aspects of the problem which still need to be investigated, and the techniques and tools of research in this area are in need of expansion and further refinement.

Second, grouping first grade children according to their needs in beginning reading and providing them with a differentiated curriculum in terms of these needs are no longer new and novel steps to take. School people who are making reading readiness adjustments for their first-grade pupils at this time do not feel so keen an urge to tell other people about their activities because nearly everyone else is doing the same thing.

Third, and this is the most important reason of all, we are coming to recognize the value of applying the readiness concept at all levels; we are beginning to think of reading readiness in broader terms. After pulling out the factors that contribute to readiness for beginning reading, lo and behold, we are discovering that these same factors contribute to reading success at any level!

As early as 1937 Gray (5) made the recommendation that the term reading readiness be applied to: "..... the successive stages of development through which the individual passes in acquiring mature reading habits. It implies also the need for continuous study of the learner's progress and of the steps to promote readiness for greater achievement in reading at successive levels of development from kindergarten to the university." In 1936 Harrison (13) published a book on reading readiness which concerned itself entirely with the pre-reading period. In 1939 a revised issue of this book appeared containing an added section dealing with reading readiness at all levels.

The above quotation and book revision are indicative of the change in thinking about the concept of reading readiness which began to shape up in the late thirties, and which gradually has been gaining a foothold since that time. This spectacular, sweeping conviction and application which the same idea received when first applied to beginning reading. We are probably just emerging into the period in which the application of the readiness concept at all levels of growth will make its greatest contribution to the improvement of reading instruction.

The great majority of studies bearing on reading readiness have, of course, used as their subjects, pupils in beginning first grade. As a result of these investigations, the factors which contribute to readiness for initial reading have been fairly well established. We have discovered relationships between beginning reading readiness, and: intelligence, physical condition, emotional stability, social adjustment, language development, and experiences which the child has had.

It is reasonable to expect that if these fundamental factors are influential in determining the child's readiness to work with beginning reading successfully, they also will be operative in determining his readiness for achieving the quality of reading expected of him at any level. Child growth is a developmental, ongoing process and we cannot chop it into narrow segments each of which is different from the others. Growth in all of these factors is like growth in reading, itself,—gradual, cumulative and continuous. The people who have made careful studies at the level of beginning reading, have through their examination of a sampling segment of total child growth pointed the way to important considerations which we should be respecting and applying throughout the total stream of reading development.

Some of the more recent studies reflect this viewpoint. These studies deal with the relationship of some of the factors mentioned above to reading at levels beyond the beginning stage, and they often cover a longer segment of growth, embracing several age levels or grades. Such studies are very valuable in pointing the way to a broader application of the readiness concept.

The many studies which have made use of retarded readers as subjects, also offer much that is helpful to us in getting a broader perspective. These retarded or remedial cases are in the larger sense of the term, "readiness cases." They are not ready to do the type of reading expected of them at some particular stage in their development. Time and again investigators in this area have found a high relationship existing between reading failure at these later levels and the fundamental factors which the investigators in the area of beginning reading have pulled out in high relief. As teachers of developmental reading give increasing attention to these other aspects of child growth as contributing factors to reading success there will be less and less need for special remedial classes and remedial reading clinics. No avenue offers greater possibilities for improvement of reading instruction in all grades of the public schools, than a more general recognition and application of the readiness concept.

With this viewpoint in mind we shall proceed to discuss research studies which seem to hold practical implications for classroom teachers to use in working toward this goal. The discussion will include significant studies pertaining to the following growth factors as related to reading: (1) physiological readiness; (2) intellectual readiness; (3) emotional readiness; (4) social readiness; (5) experiential readiness.

Language readiness is another growth area which ordinarily would be included in this discussion. The various language arts facets are so closely interrelated in the total constellation that it is difficult to separate them. For the purpose of summarizing research, however, we have separated them in this series of articles on readiness. Since the authors of the successive articles are discussing the language facets other than reading, the language area will not be included in this paper.

Physiological Readiness

A child's physical condition is an extremely important factor for consideration in everything that he does, academic or unacademic. There are several aspects of physical growth and of physical fitness which should be the concern of every teacher. First, there is total physical maturation. Teachers can do little about this but they must respect it. Then there is the matter of sex differences in learning which is closely tied up with physical growth and about which the teacher should have information.

There is a very large area of concern which embraces physical defects, deficiencies, and illnesses which might impair personal efficiency in many ways. Then, in so far as reading is concerned, defects in hearing and vision assume special significance.

All of these aspects of physical development and fitness fall under the heading of physiological readiness, and all have been investigated in their relationship to reading. The results of a few of these studies will be given below.

Total Maturation. Eames (41) conducted a very interesting study in regard to the effects of premature birth on learning. In a group of 100 reading disability cases he found that 15 percent of them were children of premature birth. He concluded from his study that the greatest handicaps resulting from premature birth were apparent during the first and second grades, after which period the premature children catch up naturally to other children.

Olsen (52) reports exceedingly significant studies in which he found a relationship between growth in reading and the total growth pattern of the child. In one report he tells of 28 boys and 28 girls who were analyzed at intervals over a period of from 5 to 8 years in length in regard to height, weight, strength of grip, teeth erupted, hand and wrist bones, as well as educational achievement. From this study Olsen draws this conclusion:

When for purposes of contrast one views the highest boy and the highest girl and the lowest boy and the lowest girl in the series, one secures a most dramatic picture of the generalization that reading tends to be an aspect of the growth of the child as a whole. Thus in these illustrative instances, as in the whole series, reading tends to be somewhere in the pattern of the total growth of children.

Fuller (43) reports as a part of the above study, the growth curves for two girls based on measures of height, weight, strength of grip, wrist bone development, dentition, mental development and reading ability. The records were begun at three years of age and extended to ten years of age. The growth curves show that one of these girls was always above average in her group physically, mentally and acedemically. The other was always below average. In each case reading followed the same general pattern of development as that shown in the growth curves of the other traits measured.

From these studies, it appears that there is a very close relationship between physical maturation and growth in reading achievement.

Sex Differences. In reading readiness and achievement it seems that girls have an advantage over boys. Samuels (57) reports an investigation conducted with children during their first two weeks in the first grade. He found girls to be approximately four months superior to boys. He later studied 100 pairs of boys and girls matched on the basis of mental age and found "sex differences in favor of the girls great enough to have statistical significance." Carroll (30) stated as a result of her investigation that "statistically significant sex differences appear during the reading readiness period." DeMichele (36) found that beginning first grade girls showed marked superiority over the boys in both auditory discrimination and visual discrimination.

Some investigators (17) have attempted to discover levels at which sex differences in reading are most apparent. One investigation reveals these findings:

1. At the four year kindergarten and five year kindergarten levels, there were no significant differences between boys and girls.
2. At grade one the girls did slightly better than boys; they had the same M. A. as boys, while the boys were somewhat superior in I. Q.
3. At grade two level the superiority of the girls was apparent.
4. At the third grade level the girls tended to surpass the boys in mental abilities, but showed no clear superiority in reading or letter abilities.

The investigators suggest that: "..... Perhaps the differences varied from grade level to grade level because of maturity factors."

Donnelly (38) gave a word recognition test to 370 first grade children and found that the achievement of the girls in word recognition was

greater than that of the boys. She found the greatest differences between the two sexes to exist at the end of six months in first grade.

While the studies mentioned above have to do with children in the first grade, many other studies of this type have been carried on with children in grades beyond the first. Some of the investigators at these more advanced levels have made use of unselected groups of children in the public schools. Others have studied groups of reading disability cases. In general, all have reached the same conclusion: there is a difference between girls and boys in reading ability and this difference is in favor of the girls. This doesn't hold true for each individual case, of course, but it does hold true for the groups examined. Johnson (46) goes so far as to conclude from his study that "to reach a given level of marks in reading, boys must have higher I. Q's than the girls who reach the same level."

Durrell (39) sums up the situation very well in the following quotation:

> Boys have much more difficulty in reading than do girls. In the study of 1130 children using Stanford-Binet as the criterion, 20% of the boys were retarded in reading, while only 10% of the girls were similarly retarded. Among the six thousand children given the Durrell-Sullivan Reading Capacity and Achievement Tests, 18% of the boys were retarded as compared to 9% of the girls..... Among children brought to the Boston University Educational Clinic for study, the ratio of boys to girls is ten to one.
>
> Difference in physical, intellectual and emotional maturation is most frequently given as the reason why, on the whole, girls seem to be ready for successive levels of development in reading sooner than boys. Other reasons given are that the interests and dispositions of girls make them more favorably inclined to learning, that pupils in the elementary schools have women teachers almost exclusively, that girls are promoted on lower standards than boys, and that there is a need for more reading material which appeals especially to boys.

Regardless of what the reason may be one practical implication to the teacher is that she cannot lump together all boys and girls of similar mental ages and expect that all will do equally well. There will be considerable overlapping of course, but she may usually expect more boys to need special consideration in reading than girls.

Specific deficiencies, defects and illnesses. Harrell (45) investigated the possibilities of increased learning taking place as a result of increased intake of Vitamin B1. She used as her subjects two matched groups ranging from 4 to 20 years of age, following the same diet in an orphanage in which the subjects were meagerly fed. Two mg. of thiamin were added daily to the dietary of the experimental group, while each of the subjects in the control group was given a pill of no therapeutic value. The experimental group consistently made higher gains in learning, ranging from 7 percent to 87 percent. In general the thiamin group learned more than the control group by about 24 percent.

Turning to some studies of remedial cases, Clowes (32) found that nearly one half of the cases in her clinic were suffering from malnutrition. Eames (41) investigated the physical defects in 100 cases of poor readers, and 143 unselected cases. He found that the following defects occurred more frequently in the group of disability cases: disorders of the lymphatic system, circulatory disorders, gastrointestinal difficulties, and tuberculosis. Monroe and Backus (51) found the following conditions present in retarded readers: malnutrition with underweight or overweight; infected tonsils, adenoids, poor teeth, etc.; glandular dysfunction; asthmatic and allergic conditions; susceptibility to colds; after-effects of children's diseases.

Mention might be made of a few studies having to do specifically with glandular trouble. Mateer (49) found that 90 percent of 100

poor readers indicated pituitary dysfunction; Olsen (52) considered a hyperthyroid condition significant; and Robison (55) found that 23 percent of the reading disability cases in her group had some endocrine disturbance.

Trichel (65) sums up the situation very well in her study of first grade entrants. She points out the effects of ill-health not only during the initial periods of reading but also later when she says,

..... glandular disturbances, malnutrition and disease may be responsible for initial difficulties in learning to read, and may impair efficiency for years.

The general conclusion in regard to this section is that children who are not learning to read as well as they should are apt to have some physical defects. The extent to which these physical defects directly influence reading success is controversial. It stands to reason, however, that the child whose vitality is low because of some physical defect or who is suffering discomfort from some defect usually will not be able to enter into the learning activities provided in connection with reading as vigorously, attentively or for as long periods of time as the child who is not afflicted with such handicaps.

Teachers would do well carefully to observe children who do not evidence readiness for reading up to the level expected of them for symptoms of physical deficiencies, defects, or illnesses. If such symptoms are in evidence, she should see that the child is brought to the attention of a physician.

A complete list of symptoms which a teacher might observe could be obtained from a medical doctor. A few of the more easily discernible ones are as follows: bodily tension, strained expression, restlessness, hyperactivity, nervousness, fatigue, lack of energy, postural slumping, overweight, underweight, frequent colds, listlessness, inattention, lack of concentration while reading.

Hearing. The incidence of hearing deficiencies among school children is much greater than one might suspect unless he has reviewed the literature on the subject. In a report titled "Determining Readiness for Reading" (31) issued by the Board of Education in New York City one finds this statement: "Approximately 5 pupils in every class of 33 have some hearing defects." In Behrens study (22) of 203 first grade children she found that "When comparisons in auditory efficiency were made with the standard of average hearing prescribed for use with the Western Electric No. 6-A Audiometer, the experimental group attained an average of 15 to 25 decibels below this standard." Fourth grade teachers will be especially interested in a study made by Lauter. (47) This investigator compared the hearing loss of various age-level groups from grades 3 to 8 and drew the conclusion that children in the fourth grade showed the greatest auditory deficiency.

Bunch (28), Ciocco (31), and Behrens (22) all found that children "tend to hear low tones to a higher degree than high tones." This is just one more argument for teachers to use low, well-modulated voices.

Sterling and Bell (60) found that in a group of 1,860 children that the over-age group showed a higher percentage of hearing loss than the children who were under-age for their group and that the efficiency of their work had a direct relationship to auditory acuity. Warwick's (66) study of 574 hard-of-hearing pupils revealed that of this number 449 had repeated once; 103, twice; 16, three times; and 1, six times. While these last two studies do not have to do with reading specifically, they certainly have reading implications.

The direct relationship between hearing defects and reading achievement has been the subject of several studies. One of the most recent of such studies was conducted by Rossignol (56) using as subjects children in the first and second grades. This investigator drew the con-

clusion that: "The relationship between hearing acuity and reading performance is significantly different from zero." She states further that:

The implication to the teacher is that in the presentation of material in a reading lesson, as well as in other lessons, the hearing acuity is a factor affecting their responses; she must be certain that the auditory stimuli used are clearly presented and she must check to find if they have been correctly heard.

Pugh (54) reports a study which she made in appraising the silent reading abilities of acoustically handicapped children. She found that:

These pupils scored considerably lower than did the hearing children. Retardation was most severe in the case of sentence meaning and least severe in such skills as alphabetizing and using an index.

Gates and Bond, (44) after studying four large classes of first grade children reported that "Although correlation with hearing loss and final reading achievement was not very high, the pupils in the near failing groups showed appreciably a greater amount of hearing loss than did the group as a whole." In studying 64 matched pairs of cases Bond (26) found that the mean hearing loss of the good reader was 7.1 percent and the mean hearing loss of the poor reader was 10.6 percent. The difference was statistically significant.

The research in regard to hearing defects in general tells teachers one thing quite definitely: that there are many pupils in the public schools who are deficient in hearing.

Data resulting from the more recent studies in regard to specific relationships between hearing defects and reading reveal that there is a relationship. Since these data are not overwhelmingly convincing we should probably be conservative and draw the same general conclusion which Rossignol (56) drew from her one study: "the relationship between hearing acuity -- and between reading performance — are significantly non-chance."

From the logical standpoint it would seem reasonable to expect that hearing impairment might affect reading particularly in the primary grades in several different ways. If a child lacks auditory acuity or keenness of hearing he may not have developed a sufficient vocabulary to facilitate beginning reading, or he may have acquired faulty pronunciation which in turn might be a factor in word recognition. If he doesn't hear well he may mistake one word for another and build up wrong associations particularly during the early stages of reading in which new word symbols are usually introduced and read orally from charts or the blackboard. Secondly, if he is unable to discriminate between sounds that are similar, he may have difficulty in recognizing the sounds of phonetic elements and in blending them successfully in attacking new words. Finally, if his hearing is impaired sufficiently so that he does not understand all that the teacher is saying in her explanations of new techniques and processes in developmental reading, or in the statements she makes or questions she asks for the purpose of giving practice on specfic reading skills, then his reading growth might be affected accordingly.

In view of the effect which a hearing impairment may have on the comfort and total personality of an individual in addition to the possibilities of its effect on reading achievement and other learnings, it is certainly advisable for every school to have the hearing of its pupils checked in kindergarten or beginning first grade and again at intervals throughout their school lives.

The use of an audiometer is the most accurate method of checking audition. In the absence of an audiometer the twenty-foot watch-tick test may be given by the school nurse or the teacher herself. This serves as a first rough screening test of hearing acuity, but of course yields no information about specific aspects of hearing.

The keen observation of the teacher often leads to the detection of a child with a hearing defect. Every teacher should be alert to such symptoms as: holding the head in a peculiar position; turning one ear toward you when listening, asking to have questions or directions repeated, unnatural tone of voice, incorrect pronunciation, earache, frequent colds.

Some cases of hearing impairment can be remedied by otologists and physicians; others cannot. It is important that the teacher exert her efforts to get all such cases before one qualified to decide upon the nature of the defect and to provide therapeutic measures. For those children whose hearing cannot be improved she may make several adjustments. She may seat the child in the front of the room near the spot in which she most frequently stands or sits. She can give consideration to the side on which he can hear the better in case the deficiency is localized or more acute in one ear. She can at all times take care to use distinct enunciation in her own speaking, and to talk in clear well-modulated tones rather than in a shrill, high-pitched voice.

Vision. Vision has been the subject of much investigation at all levels, including the beginning reading stage.

Some authorities contend that vital changes occur in the vision of children at the first grade level. They tell us that the muscles and nerves of the eyes are still immature, and that the tissues of the eyes are now plastic and easily molded. For these reasons we must take great care in the eye-requirements which we place upon first-grade children, and in the assistance that we give in teaching them to care for their eyes.

Dean (35) found that 22 percent of 116 first grade children had visual defects, but that little correlation was found to warrant prediction of success or failure on the basis of these defects. On the other hand, Bremer (27) in her investigation of kindergarten children drew the conclusions that defective vision prevented correct concepts of words; and, that "normal vision or defective vision corrected with glasses was found to be a significant physical factor in aiding reading readiness."

Several investigations having to do with the relationship of vision to reading achievement are as contradictory as these two. When we begin to examine studies that have to do with specific aspects of vision, however, we are more likely to be in a position to draw some general conclusions which are of service in guiding classroom practice.

Hyperopia or far-sightedness is a defect which seems to have rather definite implications for teachers of reading. In a study of 194 first grade entrants, Betts (23) found thirty-eight percent who were unquestionably far-sighted. Cole (33) reports that among all children of school age, about 60 percent are far-sighted. Several other investigators (24, 41, 42, 63) have conducted studies of visual defects at various levels including high school and college. All of them have found a higher percentage of hyperopia (far-sightedness) among poor readers. These investigations definitely point to the possibility that hyperopia may interfere with an individual's reading success in later grades as well as at the beginning reading stage.

On the other hand, these same investigators (24, 41, 42, 63) have found that myopia (near-sightedness) occurs more frequently in good readers at the various levels than in poor readers. The results of these studies might lead to the conclusion that myopia could even be an asset to reading achievement.

Astigmatism is another type of visual defect which has been investigated in its relationship to reading. One finds much disagreement in results of studies having to do with this defect. Swanson and Tiffin (62) and Stromberg (61) found no significant difference in the amount of astigmatism present in good and poor

readers. Betts, (23) however, found that 90 percent of remedial cases which he had examined had faulty binocular co-ordination and astigmatism. He thinks that when astigmatism does appear in a reading disability case in a severe degree that it may be a serious handicap. Betts (23) also found that among 183 first-grade entrants, 67 had astigmatism in both eyes, 25 in the right eye, and 12 in the left eye. Eames (41) found fewer cases of astigmatism among reading disability cases than good readers. When a reading disability case did have astigmatism, Eames said it usually was severe.

From these contradictory studies it would seem that we are not justified in associating astigmatism with poor reading. In individual cases, however, and especially in reading disability cases in which astigmatism is severe, it is undoubtedly one of the factors which handicaps the individual in reading achievement.

Fusion is a function of vision which some investigators have studied. In an investigation that Betts (23) conducted he found that 14 percent of 194 entrants lacked normal fusion. Sevetal other investigators (41, 63, 69) at more advanced levels have found higher numbers of low fusion cases among poor readers than good readers. One of these investigators (41) believes that low fusion affects reading in several different ways. He says that this condition "produces confusions, mixing letters and small words, jumbling of words, loss of place, and some inability to follow lines across the page."

What does all of this mean to teachers of reading? A summary of implications will be given in the paragraphs below.

Many children both good and poor readers at all levels are not ready to read as comfortably as they should because of eye defects.

Vision defects may stand in the way of a pupil achieving what we think he should be ready to achieve in reading at any given level.

All children should be checked for visual defects upon entrance to the first grade, or at the end of the preceding kindergarten year. Those who appear to have some special difficulty should be referred to a reliable eye-doctor.

Teachers at all levels should observe their pupils carefully for indications of eye-trouble. Some indications to look for are: watery eyes, widely dilated pupils, red or granulated lids, blinking or twitching lids, frowning, holding book too close, holding head on one side. Children showing such indications should be examined and if a deficiency is found it should be remedied.

The first grade teacher knowing that a large percent of her pupils are probably far-sighted at their stage of development, will confine the most of their reading work at the very beginning to charts, blackboard, and cards on which the words are printed in large bold letters. When pre-primers are introduced she will not require them to read from the book for a very long period at one time. Better to have them read two or three lines; look up and discuss; read two or three more lines; look up and discuss, etc.

If the teacher knows that a child has myopia she will seat him close to the blackboard or chart when the content of the reading lesson is written on one of these mediums.

If a pupil above first grade level mixes letters and small words, jumbles words, loses his place, and has difficulty in following lines across the page, don't be too hasty to scold him for carelessness. It may be that he has not reached that stage of maturation in reading in which such difficulties should naturally disappear; or it may be that he has a deficiency in eye fusion. If you suspect that it might be the latter, have his vision checked and find out.

Intellectual Readiness

The relationship between intelligence and reading has been the subject of numerous investigations. The results are so commonly

known that there is no point in entering into a detailed summary of such investigations here. Suffice it to say that investigation has furnished considerable data supporting these conclusions:

1. When intelligence tests are used in conjunction with other tests, intelligence is one of the most significant indices in predicting readiness for beginning reading. (35, 73, 75)

2. Intelligence is a major factor in reading success at any level, (35, 44, 51, 78, 81, 89, 90).

3. Too many bright children are failing at all levels. (51, 53, 70, 78, 88, 90)

4. A mental age of from 6 to 6½ years is considered by many investigators to be essential for success in beginning reading. (77, 79, 81, 84, 86, 93)

5. No one mental age is a guarantee of beginning reading success. (71, 74, 76, 77, 80, 82, 85, 87)

None of these conclusions are in urgent need of discussion except the last two. The conclusion in regard to the mental age of 6 to 6½ being essential for success in beginning reading has had widespread acceptance and in many cases is being used as the sole criterion for deciding when a child is ready to begin reading. In some places where intelligence tests are not available, teachers are all too often using the chronological age of 6 to 6½ as the criterion for deciding when reading instruction should begin.

In view of these conditions it might be worthwhile to broaden perspective in regard to this matter by a brief discussion of some studies bearing on the conclusion that "no one mental age is a guarantee of reading success."

Gates made a study of four different groups who were taught by different methods and materials. It was found that in one group a mental age of five years was sufficient; in a second group it was a half-year higher; the third group required a mental age of about six years; in the fourth group, children with a mental age of six years and five months fared none too well and some of those with mental ages of seven years or above had difficulty. Gates concluded from this experiment that in spite of adequate mental age as determined by other studies children were successful or unsuccessful largely in terms of the type of instruction and materials which were provided to them. Gates (76) concludes that "statements concerning necessary mental age at which a pupil can be entrusted to learn to read are essentially meaningless."

A very significant study was conducted by Bigelow (71) who reported the progress of under-age children from grade 1 through 4. Her conclusions were as follows:

1. If a child is chronologically between six years old and six years and four months old and has an intelligence quotient of 110 or over, he is practically certain to succeed in school.

2. A child less than six years old chronologically with an intelligence quotient of 120 or over will succeed, but personality factors should be considered.

3. If a child is below six years old chronologically and has an intelligence quotient below 110, his chance of success is small. It would be much better for such children not to attempt the work of Grade 1 until later.

4. Children below six years old chronologically with intelligence quotients of 110-119 (and children chronologically between six years old and six years and four months old with intelligence quotients of 100-109) have a fair chance of success. Children in this group should be studied carefully, consideration being given to their social, emotional, and physical development, home conditions, etc.

5. If a child is below six years old chronologically and has a mental age of six years and ten months or above, he is practically certain to succeed in school. If his mental age is between six years and eight months and six years and nine months, inclusive, he has a good chance of success.

6. A child who is chronologically below six years and four months of age and whose mental age is below six years has practically no chance of success.

7. A child chronologically below six years of age with a mental age between six years and six years and seven months, with a mental age between six years and six years and three months, inclusive, has some chance of success if he is sufficiently mature physically, socially, and emotionally.

Bigelow's last statement is supported by Gilmartin (77) who concludes that it would be reasonable to expect normal progress from children admitted to first grade at chronological ages of five years and three months if they have an I. Q. of 114 or better and a mental age of six years or more.

Pauli (82) reported that he taught his daughter (I. Q. 120) to recognize and to write various letters and simple words when she was four years old. Roslow (87) as a result of an experiment in providing a special program of readiness activities concluded that children with a mental age below 6 can be taught to read. Roguse (85) concluded that a five year mental age is sufficient for success.

Davidson (94) taught reading to three groups of pre-school children—a bright three-year-old, a normal four-year-old, and a dull five-year-old group—all having Stanford-Binet mental ages of approximately four years. At the close of the experiment the bright three-year-old children recognized on the average 129.4 words out of context, the average four-year-olds 55.3 words, and the dull five-year-olds 40.0 words.

Keister (80) found that children under six may acquire reading skills sufficient to carry them on through first grade at a normal rate; but he also found that skillls developed in such children tended to lack permanence and to disappear during the summer months between first and second grades.

The above investigations were not cited for the purpose of encouraging the teaching of reading to four and five-year-old children. There are many other important types of development to be promoted at these levels, and we have certainly learned from past experience that we are farther along in the long-run if we postpone reading till a time when the child can work with reading symbols easily, happily and understandingly. The chief value to be gleaned from the above studies is that from them we can generalize that no one mental age can be named as *the* mental age at which all children are ready to undertake reading.

Leaving the period of beginning reading, one experiment will be cited as illustrative of similar investigations which have made use of normal children in higher levels of the elementary school. Thomas examined 2,918 sixth grade pupils and found a close correspondence between those falling more than a year below the reading achievement median and expectancy in terms of mental age. Nevertheless, 13.4 percent were reading below expectancy in terms of mental age. Thomas drew the conclusion that whereas mental ability is the chief factor that determines reading achievement, others are involved such as physical handicaps, illness, dominance pattern, and poor instruction.

Some very revealing studies have been made in regard to the intelligence of reading disability cases, who in the larger sense of the term are also "reading readiness cases" at more advanced levels.

Monroe (50) found a range of I. Q.'s from 60 to 150 in a group of special reading cases. Preston (53) found a distribution of I. Q.'s ranging from 90 to 140 in 100 cases of reading disability. Data from a study by Witty and Kopel (70) revealed that 90 percent of poor readers of both elementary and secondary ages had I. Q's from 80 to 110, with about equal numbers between 80 and 90, 90 and 100, 100 and 110.

What are the important implications of these studies for the classroom teacher?

First, if she is a teacher of beginning reading she will not place her sole and undivided

confidence in the six-to-six-and-a-half-mental-age criterion as determining when all of her pupils are ready to begin reading. While this is the norm which has been found in several different places, there are individual differences in children, in material used for beginning reading, and in the type of procedures used. Furthermore the other elements contributing to total maturation must be considered.

Perhaps we can best make the point by quoting from Smith and Jensen (88):

Lack of harmonious development makes the reading readiness problem even more complicated. If it is finally determined that reading should begin when the child has a mental age of six years and six months, the maturation of the other factors must then be given consideration. It may be quite possible that a child's vision or muscular co-ordination is not matured to the extent that the child is ready to take on this refined, taxing work of reading. In fact, there are a number of considerations that probably are quite as important as mental age. Such factors as general and special abilities and the problems of general achievement should be recognized as of fundamental significance. The use of but a single index of reading readiness ignores the fact that the *whole child* goes to school and that such factors as wants, interests, and attitudes which have biological foundations are fully as important in determining reading readiness as the traditionally used indexes.

Teachers of pupils above the first grade may find some valuable implications in these studies, also. It has been observed that many children who have I. Q.'s that are average or above average are not making the progress in reading which they should in terms of their mental age. These children, then, must lack readiness in some other factor or factors which contribute to reading success. Try to find out what these other factors are, and remove their cause. Provide material and instruction in keeping with the child's present achievement level, but aimed at continuous improvement as the hindering factors are removed or corrected.

Emotional Readiness

Educators are increasingly recognizing the need for more attention to emotional maturity. In the wealth of literature which points to the necessity for developing the emotional responses of the child as a part of his total growth, one frequently finds significant statements in regard to the relationship between emotions and learning to read. Prescott (103) for example, says:

To engage successfully in reading, the child must learn to work cooperatively with other children, to follow directions, and to listen to group conversation as well as to participate in it. He must be able to attend rather closely for varying periods of time to the instructional activity. He should be persistent, resourceful and courageous in meeting new or difficult problems, and it is important that he engage in learning situations not with fear or anxiety but with self-confidence and a feeling of security ..... The child who ..... is socially or emotionally immature must be given time and opportunity in the first grade to grow in these areas before he is confronted with predominantly abstract intellectual problems.

Several investigations have been conducted which have a direct bearing on reading readiness, in its larger concept, and emotions.

First, let's consider parental and home influences.

In a study of 30 children of normal intelligence but with reading difficulties, Misseldine (101) found that a third of the children had over-hostile mothers, four suffered from "acute sibling jealousy reaction," two others were "indulged, then neglected or rejected as they reached school age," and two were "over-indulged." Practically all of the children tested were "insecure," "restless" and "emotionally ill."

Tulchin (108) found that parental nagging of the non-reader led to tension and nervousness which obviously inhibited the learning process. He concluded further that "The child's experience during the first few reading lessons may be so charged emotionally as to color all

his subsequent reactions and determine his resistance to reading."

Blanchard (96) traces reading disabilities to a fear of the mother's attitude, and to jealousy over a younger sibling.

Saunders (105) reported that the children who did not learn to read were not aggressive, that they developed behavior problems, and that they were emotionally dependent upon their parents.

Brenner (27) reported that "Emotional instability resulting from physical causes as visual defects, lack of hand and eye dominance, or home conditions interferred with reading success. When the cause was removed behavior and reading improved."

Bird (95) used 100 children between the ages of four and six years as the subject of a study in which he found that 30 had personality handicaps which interferred with their learning.

Kinberg (100) drew this implication from her study:

Consideration of his [the pupil's] reading difficulty cannot be made apart from his personality adjustment and his attitudes toward reading experience. Helping to build emotional security may be essential in stimulating greater participation and better achievements.

Monroe and Backus (51) reported the following emotional factors as important causes of reading disability: general emotional immaturity, excessive timidity, predilection against reading, and predilection against all school activities.

Many other studies (94, 97, 99, 102, 104, 107, 110) dealing with children at different levels who were having difficulty in learning to read, have revealed that reading disability is frequently associated with emotional instability.

Several of these investigators (72, 98, 106) have found that personality maladjustments tend to decrease or disappear as reading success occurs.

What are the implications of these studies for classroom teachers and what can they do about emotional problems? In examining studies in this area one gathers that: first, many of the emotional maladjustments that school children have sprung from the home; second, the period in which children are first adjusting to school life is a crucial time in the development of emotions; there is a high incidence of emotional maladjustment in children who have trouble in learning to read; there is evidence that many children who have overcome their reading difficulties have improved emotionally.

One of the first constructive steps which a teacher can take toward promoting better emotional growth in her pupils is to have conferences with their parents and enlist their cooperation in removing pressures, jealousies, fears, and worries which may have their origin in the home. She should also look for possible physical causes of emotional maladjustment.

In the classroom the teacher should ever keep herself alert for possibilities of placing emotionally disturbed children in situations in which they may have opportunities to direct distorted emotions through more desirable channels, and she will give them the necessary guidance in doing this.

In the case of a child who lacks confidence she will so organize school activities that the child will have a chance to succeed in many situations, she will recognize his success even in the simplest situations; she will avoid placing the child in situations in which his weaknesses will become strongly obvious because of comparison with more competent children; and she will make success in reading possible by providing very easy material.

In the case of a child who is overly aggressive, the teacher may challenge his ability by providing more difficult material and assignments, and encouraging the child to choose more difficult tasks in classroom activities.

She will place him on committees with children of equal or superior ability; she will withhold praise; in the upper grades, she might encourage such a child to keep objective records of his achievements so that he can see that it is possible for him to do better.

If a child is fearful, timid, nervous or worried the teacher should try to find out the cause and remove it. She may invite the child to confide in her, to tell her how he feels about things that disturb him; she will take an objective attitude toward his emotional disturbances instead of being annoyed by them; she will enlist the child's cooperation in overcoming his difficulty; she will promote friendly relations between the child and other children and between the child and herself, but at all times she will give him firm and patient guidance.

Withal, the teacher will give all of these emotionally disturbed children control over the reading process as quickly, happily, and efficiently as possible, for it may be that the inability to read is the cause of some of their maladjustments.

Van Buskirk (109) sums up very concisely the possibility of the school's contribution to the development of emotional stability when she says:

Education can play a positive role in the formation of emotional stability. In the first place, the child in school becomes a part of a social group which sets a certain pattern of behavior to which he must conform if he is to feel satisfaction. It is quite possible for education to preserve the positive, dynamic values in emotional expression, at the same time observing conformities.

Social Readiness

Social readiness and emotional readiness are so closely intertwined that it is difficult to separate them in any clear-cut way. A child's social behavior is really an expression or repression of his emotions in situations in which there is interaction with other personalities. For this reason no attempt will be made to preclude emotions in this discussion of social readiness.

Two types of studies will be considered under this heading; (1) those which have to do with the social status of the family in relation to reading; and, (2) those which have to do with the social characteristics of children, themselves.

Numerous studies have been made in regard to the relationship between the social status of the family and reading. A sampling of these studies will be presented.

In the area of readiness for beginning reading, Stallings (124) found that, "Parent's education, occupational level, and economic condition are factors bearing in direct proportion on scores made on readiness tests in this study."

Hattrick and Stowell (117) revealed in their report that the work habits and social adjustments of children who came from well-adjusted homes were consistently better than those of children who had been pushed or babied.

Brown (115) found that in certain racial and economic groups which he measured, the higher the social level of the child, the greater seemed to be the probability for his emotional stability.

On the other hand we have studies which show that there is not a close relationship between the socio-economic status of the home and reading or emotional stability as it contributes to reading.

Ladd (119), who studied children in the third, fourth, and fifth grades, found that relationship between the socio-economic rating of the family as rated on the Sims Socio-Economic Score Card, and reading was not very significant. Bennett (113) concluded as a result of his study that "there is no clear evidence that the occupational adjustment of the family was a significant factor in producing the poor readers." Bennett aslo concluded that the edu-

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cational status of parents of reading-problem children was not a significant determinant to children's reading progress.

The higher type of homes might even be a detriment to the amount of reading done in some cases. Russell (116) reports a study by Reed in which it was found "that a few rather extrovert well-adjusted children from high socio-economic levels don't read much because they have so many other experiences and interests."

From these studies and other similar ones it seems that while there is a close relationship between the socio-economic level of the home and readiness for beginning reading, that this relationship usually does not hold to any significant extent in regard to reading achievement in later grades.

Blatz, et. al. (114) conclude that adjustment to social situations is learned with age and that the child of seven or eight will have become fairly well adjusted to social demands. This may account for the lack of conclusive evidence of a relationship between reading achievement and social factors beyond the readiness period.

To pass on to a consideration of investigations which have to do with social characterisitcs of the children, themselves, a study conducted by Marston (120) is of interest.

Marston investigated young children in regard to those traits which as he points out largely determine the individual's adjustment to his surroundings: social resistance, compliance, interest, and self-assertion. He concluded that long before school entrance, children of two and three years already have developed characteristic attitudes of introversion and extroversion. The results of the study indicate a decrease in extroversion with increase in chronological age. Marston drew the general implication from his study that many pronounced tendencies which might later cause maladjustment of children in their social life are modifiable and subject to training in their early years.

This conclusion was re-affirmed by Rice (123) who said that the findings of her study indicated that children with a C.A. of 5-6 to 6-0 years are more susceptible to training in social adjustment than older children, from 6-0 to 7-6 years.

The effectiveness of the nursery school and kindergarten in meeting the situation as pointed out above, has been the subject of much investigation. As samples of such studies, reference will be made to one conducted by Peterson (122) and one by Hook (118).

Peterson (122) measured two groups of children in regard to social maturity, one in which the children had attended nursery school and one in which they had not. The groups were similar in age, intelligence, and social-economic background. At the time the children were ready to enter kindergarten, he found that the pupils in the nursery school group were more aggressive, independent and sociable according to ratings made on the Berne scale. They were also more mature in social competence as measured by the Vineland scale.

Hook (118) tabulated and analyzed different types of experiences which children had in the kindergarten in terms of the contribution which they might make to reading readiness. Of 131 different types of kindergarten experiences analyzed, 69 or 53 percent were influential to the social development of the child. A larger number of the experiences fell within this category than in any other.

From these and other studies it would seem that pre-school experiences are being provided to develop social maturity at this crucial period in a child's life.

In so far as social adjustment and reading, itself, is concerned, a very recent study by Mitchell (121) yields interesting information.

Mitchell stated that undoubtedly many teachers and parents are under the impression that children who spend a great deal of time in reading lack in sociability, so she attempted to determine the significance of wide reading as a factor in the social acceptability of sixth grade children. Her findings lead to the conclusion that extensive reading is a significant factor in children's social acceptability. She states that her study "gives no encouragement to the misconceptions caused by the fear of parents and some teachers such as (1) bright children should not read too much; (2) reading makes children antisocial....."

Studies of retarded readers offer us some valuable clues for use in teaching developmental reading. As a result of his experience with readers of this type Betts (112) says:

..... it is not uncommon for a child with an unanalyzed reading problem to withdraw from the reading situation by becoming a disciplinary problem or by "crawling into his shell." When these pupils see their contemporaries making normal progress, they sometimes conclude that they are "dumb." This type of reaction and rationalization does not produce adequate social adjustment.

A few studies will be mentioned which support this contention.

As a result of his study of reading disability cases, Kniberg (100) concluded that:

The bulk of experimental material .... reflects the personalities of Retarded Readers to be less able than Successful Readers to cope with intellectual (in this case reading specifically) and social situations that confront them.

Saunders (105) discovered among other things, that:

Children who did not learn to read were not aggressive; they played alone and avoided social contacts until they were considered antisocial.

Fernald (116) made a study of 78 cases of extreme reading disability. She found that in all cases, except four, these children had no history of emotional instability before they entered school. In all cases, other than these four, teachers and parents stated that the child had begun "his school life joyfully, eager to learn to read and write, and that the emotional upset occurred only as the child's desire was thwarted by his inability to learn as other children did."

Then Fernald goes on to discuss the social implications of these failures in reading. She says:

So the child comes to hate or fear books, papers, pencils, and everything connected with the schoolroom. The mere mention of reading and writing will often send him into a paroxysm of fear or rage, or arouse a sullen, negative response. Since school is the first group experience for most children, these negative emotions become connected through conditioning with the group, with the members that make it up, and with group activities. So we find the child either tending to withdraw more and more from the group and assuming a fearful antagonistic attitude toward it, or compensating for his failure by bullying or showing off. Our original case reports are full of descriptions of the "solitary child" and the "bombastic child."

The studies above were selected from many studies of this type. Nearly all such studies have pointed to a close relationship between reading disability and social maladjustment.

These studies have several practical applications for classroom teachers.

One implication which is quite clear is that the period in which the child first enters school is a crucial one in developing social behavior, and that kindergarten and first grade teachers should be particularly alert to opportunities for redirecting tendencies toward anti-social behavior at this time.

Another implication to be gleaned from these studies is the need to provide rich background environment and cultural influences in school for young children who come from homes of low socio-economic level. If children from the better homes are ready for reading

sooner than those from meager background homes, then attempting to make up this lack in school would seem to be one way of building readiness for beginning reading.

While there is not conclusive data to the effect that a similar relationship exists between homes of low social-economic status and reading achievement in the more advanced grades of the elementary school, we do find evidence of a relationship between social maladjustment in the child himself and retardation in reading. For this reason, from the reading standpoint as well as from the standpoint of total personal development, promoting growth in social maturity is important at all grade levels.

The social organization of groups and the give-and-take, free-discussion, co-operative types of activities which one finds in modern elementary classrooms are of course excellent ways of providing for social development. There are, however, certain individuals, who, even under the best classroom conditions, need special help; children who have social maladjustments of the types so frequently found in retarded readers, are of particular interest in this discussion. There is for instance the child who is ill at ease when mingling with others. For such a child the teacher should provide *many* contacts with children of the pupil's own age, older children, younger children, adults. . . all in situations in which there are opportunities for interactions.

If the child is lacking in cooperation with others, and in responsibility for contributing to group interests and needs, then the teacher should frequently plan activities that can be shared in small groups, and place such a child in a group in which he is capable of making a contribution. She should have frequent discussion periods in which planning is done. If the child offers no suggestions, ask him what contribution he has to make. Show need of reading as a source of contributions, and encourage the child to make use of reading in order that he may participate more fully in group activities. Accept small contributions at first, and commend the child for any attempts at all toward increased participation.

If the anti-social behavior seems to be taking place because the child is beginning to "slip" in reading, or has already become retarded in this skill, then helping him to read better is the first consideration. In such cases every effort should be made to find out the cause of the child's reading difficulties and to provide him with appropriate instruction. During the period in which this is being done the teacher should establish an understanding and sympathetic rapport with the child rather than being impatient with him. She should attempt to provide him with a sense of security by accepting him as an interesting personality as a whole, even though he can't read well, at the same time helping him to catch up with his handicap as rapidly as possible.

In all daily reading activities the slower children should be respected from the social adjustment standpoint. When group games are played for practice purposes, opportunities should be provided the slower readers to make successful responses to simpler elements or processes than those presented to the better readers. It is very important also that the reading material used with the slower reading groups should be sufficiently easy so that they can understand the content, discuss it, and enjoy it together.

Experiential Readiness

A few investigations have been conducted to ascertain the effectiveness of first hand environmental experiences on readiness for beginning reading and on reading achievement. Others have been made in the area of reading itself. These studies have been directed toward the problem of ascertaining the value of providing experiences which make use of certain aspects of the reading process. A few sample experiments in each of these classifications will be discussed.

First-Hand Environmental Experiences. Reading is essentially a process of gleaning meanings from printed symbols. The meanings, however, are not vested in the symbols, themselves; rather do these meanings spring from the mind of the reader who bring meaningful concepts to the symbols in terms of his own experience. Symbols are but empty shells. It takes experience to fill them with the meat of meaning. This being the case, one might expect that the reading process would be facilitated by building up a rich fund of meanings through first hand experiences, a reserve stock of concepts which could be drawn upon whenever the occasion demands in interpreting reading symbols.

The above hypothesis is probably the one which has prompted a few investigators to attempt to measure the relationship between experience and reading success. We need to have many more studies in this area. A few of the most pertinent ones which have been made will be reported.

Cantor (127) conducted a very interesting study to ascertain the value of excursions to kindergarten children as a means of perparing them for first grade reading. During the course of her investigation she used four methods of checking: (1) a critical summary of excursions taken according to previously established criteria; (2) an analysis of the concept-building characteristics of the excursions with relation to a standard vocabulary; (3) a comparison of the topical and vocabulary demands of primary readers with kindergarten preparation; (4) a check during the first year of primary work done by children who had had this excursion experience in their kindergarten year.

This investigator found that two hundred and four concepts were given background in experience through nine excursions taken, and that a correlation had been effected between the vocabulary and concept demands of primary reading, and the vocabulary and concept supply of nine typical kindergarten excursions. The children who had taken these excursions in kindergarten were also checked for reading readiness and reading achievement in first grade. Cantor's conclusion in regard to the effect of the excursions on learning to read are:

> From results of scientific tests administered in the primary year and the comparisons made with reading readiness in other schools, it seems probable that the children (who had the excursions) definitely profited from the comprehensive program of kindergarten excursions excursions experienced in their kindergarten year.

Hilliard and Troxell (131) conducted an investigation to ascertain the relationship between rich or meager background and success in reading. They used as their subjects seventy kindergarten children whom they followed through to the second grade in checking reading progress. At the beginning of the experiment they gathered from the kindergarten teacher, the principal, the school nurse, and other sources all information possible concerning the child's pre-school and present environment and background. The childrens' I. Q.'s were then determined and the total group was divided into two groups, one composed of children with meager backgrounds, the other composed of those having rich backgrounds. The rich-background group had slightly higher mental ages, but the difference was not statistically significant. Reading tests were given to both groups at the end of six months in first grade and again at the end of four months in second grade. As a result it was found that the rich-background group was two months ahead of the meager-background group at the time of the initial testing, and six months ahead of the meager-backgtound group at the time of the second testing. The rich-background group was five months ahead of the grade norm for the tests on the second testing and the meager-background group was one month below the norm at this time.

The authors drew this conclusion:

Other factors being equal, this study shows that children with rich backgrounds are more strongly equipped to attack the printed page than are the pupils of meager backgrounds because of enriched meanings and thought which the former bring to this task.

McWhorter (133) attempted to discover whether children's first-hand experiences influenced to any significant extent their growth in reading. She used as her subjects children in grades 1 through 4 in a county children's home "whose whole world had been enclosed within the walls of poverty." These children according to McWhorter had very meager backgrounds. They were given reading tests at the beginning and at the end of a six-week period during which time they were provided with a heavy program of enriched experiences which motivated much of their reading. At the end of the period test results revealed the following gains: first grade gained .25 of a grade (¼ year); second grade gained .26 of a grade (over ¼ year); third grade gained .75 of a grade (¾ of a year); and fourth grade gained .52 of a grade (over half a year).

McWhorter had no control group with which to compare gains but since all but three of the children were retarded in reading for their grade-age at the beginning of the experiment it would seem that these children must have made much greater progress than usual during this six weeks' period. One doesn't know how much the enriched experiences in themselves contributed to these growths as the materials and methods used also could have been factors. Nevertheless, the combination seems to have been very effective. Of particular significance is the fact that this combination of factors appeared to be even more effective in second, third and fourth grades than in first grade.

McDowell (132) reports a study in which an "enriched curriculum" was provided to a group of 52 kindergarten children. These children came from Italian, Jewish, Mexican, and American homes and were attending a school in which reading ability had been consistently inferior. The curriculum which was provided to them during the kindergarten year included modifications in equipment and supplies; provided for physical examinations and dental corrections; encouraged parent education; and "the daily program was enriched through science experiments, excursions, nature study, movies, literature and music."

McDowell concludes:

Since the results in this study show a significant growth in the experimental group, after they received kindegarten training in the enriched environment, since the experimental group's progress exceeded that of the previous kindergarten group, and since the Karnes group for the first time on record compared favorably in reading ability with that of the Longan group in the American school, it seems evident that the reading ability of these foreign children was improved through an enriched environment in the Karnes kindergarten.

As in McWhorter's study one has no way of telling how much of the gain was due to enrichment activities since other factors were also in operation in the modified curriculum. A large part of the school time, however, was given over to enrichment activities, so it would seem reasonable to assume that these enrichment experiences contributed something to the gains made by the children who participated in them.

Other investigators have conducted related studies. Harvin (129) and Behrens (22) found that providing background experiences was one of the effective ways of preparing for beginning reading. Stallings (125) in his study of urban and rural children drew as one of his conclusions "The child's pre-school experiences through association with other children, literary influences in the home and travel are factors bearing in direct proportion on the scores made by children studied in this experiment."

Hildreth (130) prepared and tried out "Information Tests of First Grade Children" with a class of forty-seven pupils. Her most significant conclusion was that: "The highest degree of success was found in those items most familiar to the child, most often repeated and heard and consequently most frequently over-learned."

Experimental evidence in regard to the relationship of experience to reading success is too meager for us to draw any decisive conclusions at this time. What data we do have, however, are favorable. Their implications to kindergarten and first-grade teachers in so far as reading is concerned are two fold: (1) analyze the early readers which children will use for vocabulary and concepts; (2) provide enriching experiences which will acquaint your pupils with this vocabulary orally, and which will equip them with necessary concepts ahead of the time that they will meet these particular words and concepts in reading text. Instead of keeping them on the same level of over-learned concepts, let's open new horizons to them!

To teachers of reading beyond the first grade we might say that if building concepts through experience is helpful to reading growth in the first grade it is reasonable to expect that the same principle would hold throughout the grades. One of the studies reported above indicates that this is the case, and that building experiential background was even more effective in the second, third and fourth grades than in the first grade. In these and in more advanced grades one probably would be forced to use increasing numbers of vicarious experiences in building background for the ever-widening range of settings and topics which children meet in their reading. In addition to the direct use of first-hand experiences in building concepts for reading content, the teacher in these grades may use abundantly still pictures, slides, films, exhibits, diagrams, conversation; and she should not hesitate to impart vivid worthwhile information which she, herself, has gleaned through her own first hand contacts with interesting people, places and objects. It would be very stimulating and worthwhile if every teacher of reading would experiment either formally or informally in building concepts for the reading content which her pupils will use, and then check the results in some way in order to ascertain the value of her concept-building activities.

Reading Experiences. It would be inappropriate in this article to attempt to summarize investigations throughout the elementary school which have been concerned with different types of experiences in using the reading processes, themselves. There is a vast accumulation of literature in investigations having to do with procedures, practice exercises, and reading content as these different factors affect reading interest and achievement. Many of these studies have direct implications in regard to readiness for certain skills and material at different levels. In the interest of space these investigations cannot be reviewed. We will, however, discuss a few recent studies having to do with contacts which children have had with reading symbols preceding or during the early stages of beginning reading.

One of the most recent studies at this early level was conducted by Almy (126) who explored the possible relationships between success in beginning reading and reading experiences before first grade. We can do no better than to quote the results of this investigation as phrased by the author:

> A significant, positive relationship exists between success in beginning reading and the child's responses to opportunities for reading prior to first grade. This is true despite the constraints in the criterion, the unrealiability contributed by retrospective errors, and the narrow range of talent and ability in this group.

While experiences which are usually thought of as "reading," such as looking at books and magazines, or being read to, contribute to the positive relationship between reading success and responses to opportunities for

reading, interests in words, letters, numbers, wherever they may be found, as on signs, cans, packages, and table games, are also important factors in the relationship.

In Murphy's experiment (134) at the beginning reading level she found that "a lack of auditory discrimination, that is, power to distinguish between similarities and differences in sound of words appears to be one cause of confusion in reading," and that "specific training in auditory discrimination improves reading ability."

Wilson (136) and others concluded that kindergarten and first-grade children who knew the most letter forms and sounds tended to be among the first to learn to read and to be the best readers and conversely, that the children who were ignorant of, or confused about, letter forms and sounds tended to be very definitely the poor readers.

Gates and Bond (128) drew the conclusion that "a correlation between the amount of previous instruction in reading given at home or at kindergarten or elsewhere, and success in reading was slightly greater than the correlations of mental ages and reading readiness."

Harvin (129) computed correlations between activities used by teachers to develop reading readiness and reading results obtained. The correlations between eight types of activities and reading attainment were high enough to have statistical significance. Named in rank order "contact with symbols" appears first on the list of these activities.

Umstot (135) investigated the value resulting from having beginning first-grade children read experience charts or stories based on their own experiences. She concluded that:

> The experimental group seemed to score highest on tests requiring the ability of associating words with pictures, interpreting the meaning of words and the ability to read simple thought units, like those found in the sentence and paragraph tests.

All of these studies point toward an advantage for children who have contacts with symbols and who have had opportunities to make some use of elements of the reading process as a preparation for initial reading in books. The practical implication is that we must make definite provision for opportunities offering possibilities of growth in *reading* as well as for growth in other areas. We should view reading as one component of the total pattern of child development. Reading is such an important component, however, that it can't be left to chance. Reading growth demands the best guidance which it is possible for us to offer. Such guidance will not emanate from the results of scientific studies alone. Our most complete guidance will be derived from the combined sources of modern psychology, philosophy and investigation. Each of these should be drawn upon in whatever proportion is neccessary to promote the goal of continuous, uninterrupted growth in reading from the time the child first evinces interest in symbols on the grocery package, until as an adult pressed with a multitude of other demands, he stands ready to meet his reading needs with a minimum use of time and energy. There *is* such a thing as reading readiness at all levels!

Needed Research

1. There is need for more "longitudinal" research, that is, research that covers longer periods of time in checking the relationship between reading and physiological, intellectual, emotional, social and experiential maturity, respectively.

2. There is need for more research in finding effective ways and means by which the services of other specialists may be utilized in building total reading competency.

3. There is need for more "longitudinal" research in the field of reading, itself, to ascertain what growth levels to expect at successive stages of development in various aspects of such processes as word recognition, com-

prehension, interpretation and use of study skills.

4. There is need for more research to determine the kinds of experiences and the sequence of experiences which are most effective in developing the different reading skills at successive stages of growth.

5. There is need for more research to ascertain the best ways of building concepts for reading, and for measuring the effectiveness of concept-building on the child's capacity to understand what he reads.

6. There is a need for more research in regard ro the effects of reading content on children.

7. There is need for research to find more effective ways of teaching children to read critically.

8. There is need for research in regard to the place of reading in our future civilization, and the kinds of reading skills which will be needed most in the types of reading which will be done in the new order of things.

9. There is need for more adequate tests to use in determining readiness for beginning reading. Such tests should be much broader in scope than the present first-grade reading readiness and intelligance tests.

10. There is need for more adequate instruments to use in measuring growth in the different aspects of reading, itself. We need tests that check a greater number and some of the more significant aspects of the reading process. As an example we might refer to the usual reading-interpretation tests which devote themselves largely to checking comprehension of paragraphs or passages of text. Perhaps test should also include sections which call for such responses as underlining parts that give unbiased information or "straight facts;" parts that show prejudices of the author or reflect his personal experience; parts that are designed to affect one's "feelings," etc.

11. There is need for more diagnostic tests covering the whole range of areas discussed in this paper. Such tests should be designed for the use of the classroom teacher so that she may administer them at the first symptoms of reading deficiency, locating causes and specific types of reading disabilities which are in need of attention. In many cases adequate diagnosis during early stages of reading deficiency may prevent severe retardation at a later period in the life of a child.

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Readiness For Oral And Written Language

HELEN HEFFERNAN[1]

An examination of the results of recent research reveals relatively little direct evidence on children's readiness for instruction in oral and written language although many significant implications may be drawn from the growing body of information made available by child psychologists. The importance of language skills in human development has made this an area of great interest to the student of psychology. The relationship between thought and language has been thoroughly established. In the early years of life—usually before five—a normal child acquires sufficient control of complex linguistic symbols to understand the speech of others and to use language in conveying his needs, interests, and desires to others in ways which influence their behavior. Reasonable facility in language expression is essential to school progress. Children who suffer from physical or sensory impairment which retards or prevents linguistic development are notably handicapped in all social and intellectual activities. A child who cannot speak clearly and well, for example, has more difficulty in making effective social adjustments than the child who has facility in the use of oral language. (12).

Stages of Development

Research on stages of language development indicates that the normal child begins to use vocal sounds for purposes of communicating pleasure, pain, or eagerness during the first few months of life. By the time he is one year old he adjusts to simple verbal commands and uses two or more words. Six months later he responds to simple questions, names two objects and begins to combine words. By two, he uses simple sentences, certain pronouns, and differentiates between prepositions. Month by month the young child grows in his desire and ability to communicate.

In a good home, where the infant receives praise, approval and recognition for the sounds he makes, linguistic growth is rapid and continuous. Even babies need a sense of achievement. This is the way emotional security is built. Children are rewarded by demonstrations of love and tenderness for conforming to acceptable social patterns. Love, affection, praise and approval stimulate their day-by-day development in language as in all other activities.

A child learns the language of his environment because language is imitative behavior. Many studies point to the marked individual variation at the same age level. Other studies point out the stimulation of new experiences, such as a vacation or a trip to the seashore, to vocabulary development. The background of experience; the places a child has been; the effort of adults in the home to respond to the child's questions, to satisfy his curiosity and to stimulate his interests; the quality of speech he has heard; all play an important part in determining his speech development. Occasionally a young child who seems retarded in speech development has had no real motivation to develop his powers because oversolicitous parents have anticipated his every need or desire. In certain homes, too great stress may have been placed on correct usage or enunciation so the young child's free flow of verbal expression may have been inhibited.

Environmental Factors

Marked relationship exists between environmental factors and linguistic development. A number of studies of the young child are concerned with the effect of multiple births. E. J. Day's study in 1932 of 80 pairs of twins showed the twins retarded in all aspects of language

[1]California State Department of Education, Sacramento, California.

development. (6-7) She stated that "the mean length of response for five-year-old twins is slightly below that of three-year-old singletons." Edith A. Davis, in 1937, confirmed these findings in her study of school-age twins, singletons, and only children but points out that the social contact which the school affords seems to promote the normal linguistic development in twins lacking in the environment of the preschool period. (4) E. J. Day points out that "One surely could not learn as much or as rapidly, from companionship with an individual so nearly on his own plane as from one in advance." These studies and many others indicate the importance of association with adults in facilitating development in language.

Many studies point out the effect of the socio-economic status of the family as a factor in language development. In the study by Edith A. Davis previously cited she shows that children from the upper occupational group are definitely superior to children from the lower occupational group in every phase of language ability. They also display greater spontaneity of speech. (4) F. M. Young in 1941 made a comparative study of two sharply defined socio-economic groups in the nursery school at the University of Georgia and found that the upper group surpassed the lower group in all aspects of language analyzed. (19)

The school environment seems to have a measurable effect on language development. G. M. Worbois in 1942 made a comparison of the language of children attending a one-teacher rural school with the language of children attending a rural consolidated school. The children were matched for age, I. Q., type of home, and education of the parents. The group from the consolidated school showed marked superiority on the vocabulary test and the verbal effectiveness test. (18). Factors which were not equated in this study such as the relative professional education of the teachers would have been significant.

All of these environmental factors have great significance for the teacher. Readiness for specific instruction is affected by the position of the child in his family, by the economic status of the family, by the richness or meagerness of the community life of which the child is a part. The teacher's efforts may well be directed to helping the group to become a happy working unit. Social studies and science experiences appropriate to the maturity level help to establish a common vocabulary so necessary to effective communication between the members of the group. Children will acquire the ability to speak and to listen to the contribution of others. In this social situation, the teacher can note the level of development and the needs of each child. No teaching is effective unless it is directed toward meeting the needs of children. It takes time for the teacher to study the group and ascertain what these specific needs are.

Vocabulary Levels

Authorities have set average vocabulary levels for young children which are astounding to the layman unacquainted with these findings. The average vocabulary of the three-year-old is approximately 900 words, of the four-year-old approximately 1500 words, of the five-year-old apptoximately 2,000 words and of the six-year-old approximately 2500 words. (14) The process by which the child has been endeavoring to make himself one with his world has resulted in the acquisition of a tremendous number of verbal symbols. Recent studies indicate that these figures err on the side of understatement and need revision upward. (13, 15) The techniques of determining vocabulary may have been inadequate but it is likely that studies might reveal that the modern parent is more conscious of the importance of the early years of life than was the parent of twenty or thirty years ago. All of the efforts of local and national organizations to acquaint parents with the findings of child development institutes must have influenced the treatment of children in the

home in ways which have greatly increased their acquisition of vocabulary.

Before five, children are able to speak in sentences. Questions beginning with *who, why,* and *what* are eagerly asked and in the modern home are patiently and intelligently answered. A five-year-old who has enjoyed reasonably good adult guidance is able to speak clearly in complete sentences and tell of an occurrence by means of a logical sequence of several sentences.

Individual differences in linguistic development parallel individual differences in intellectual development. It must not be overlooked, however, that all measures of intelligence are heavily weighted with verbal factors. (9)

The early language development of young children has significance for the teacher. Communication in oral and written form should be kept a pleasurable experience with great satisfaction experienced by the child as he progresses in his ability to speak clearly, to use complete sentences, and to employ new words to give richness and meaning to his expression. The teacher recognizes the individual nature of linguistic development and holds no artificial standards to which each child is expected to conform.

Readiness for Oral Expression

Although the child has acquired truly amazing skill in oral expression before he enters school, he is still growing in power and has need of effective guidance to establish acceptable enunciation, good voice quality, an expanded vocabulary, and to organize his ideas into sentences and logically related sentences. The quality of experience the school provides will determine how rapidly the child will develop and how soon he will acquire readiness for more advanced skills in oral communication.

In a study of the conversation of first-grade children during free play periods, Ethel Mabie attempted "to discover whether or not the activity that engages the attention of children has a direct influence on the type of conversation carried on by them." A stenographic report was made of the conversation of 32 pupils of a first-grade class in the Hawthorne School, Madison, Wisconsin. The activities of the children determined to a large extent the type of speech used. About 25 per cent of the speech was egocentric —virtually monologue. About 75 per cent was social speech—conversation with the audience in mind. The activities requiring co-operation resulted in the largest percentage of social speech. The activities stimulating social speech have significance to the teacher. Gathering the materials and organizing a store resulted in 93 per cent social speech; playing with a store already equipped, 86.9 per cent; building with blocks, 73.4 per cent; organizing a game with a large rubber ball, 72.9 per cent; using the stereoscope, 63.8 per cent. Clay modeling resulted in 37.9 per cent social speech while playing ring toss, an essentially individual enterprise, resulted in only 27.8 per cent social speech. (10)

In a similar study, D. Van Alstyne found that certain materials had high "conversation values." The doll-corner with dishes, blocks and crayons ranked high while painting, work with scissors and books ranked low. (17) Teachers who wish to stimulate linguistic development in children who are not naturally talkative might carry on informal studies of materials and experiences which seem most conducive to conversation. The writer was unable to find much research indicative of the stimulation to conversation provided by vital group purposes. Observation in any class room guided by a teacher who believes that children learn what they live and experience substantiates the conviction that all aspects of development are greatly accelerated when children are working to satisfy their needs, to solve their own problems, and to achieve purposes that are meaningful to them.

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These studies point to the importance, of providing an environment for children rich in material and social experiences which stimulate them to interact with the materials and with each other. In addition to a rich environment which leads children to wish to construct and manipulate, to be physically active, to share and communicate ideas with one another, the emotional climate of the classroom must be such as to give the children the greatest possible freedom under sympathetic guidance to use the materials constructively and cooperatively. Such an environment stimulates normal language development. The earlier children acquire facility in oral expression, the sooner will they be able to make use of the tool essential to educational progress.

Teachers of young children are continually concerned about the incidence of incorrect speech. Their concern is evidence of understanding of the close relationship which exists between correct speech and the child's likelihood to succeed in spelling, writing, and reading. (2) If the child says, "My wittle wabbit has wong ears," he is bound to be in serious difficulties if someone undertakes the task of teaching him to read or spell.

Should the child who enters school talking baby talk be referred to the speech therapist? Or, lacking such services in a school, what should the teacher of beginning children do? Many children rapidly overcome the articulatory defects of baby talk. In other children these speech mannerisms are more pronounced and persistent. It is difficult for the teacher to determine when actual therapy is needed. By focusing attention too early on speech difficulties, the child may become self-conscious and refuse to talk. For many children a social situation which encourages them to talk freely results in increased self-confidence and independence which is reflected in rapidly increasing control of speech.

The value of group training for young children to provide practice in speech and ability to hear accurately the correct articulation of the teacher has been definitely established. (16) The teacher of young children can make considerable training of this type incidental to her use of rhymes, stories, and songs. Every experience in which language is used may become an opportunity for informal speech development.

The experiences provided for children determine how early and how well they will acquire good speech habits. In these activities, the teacher should be watchful to assure all children an equal opportunity to make contributions to the discussion. (2) Children with good verbal facility are prone to take more than their share of the "turns". Planning the activities for the day, working with others in construction, recreating experiences in dramatic play, discussion about ideas obtained from trips or reading, evaluation of work in progress are all situations in which children reveal to the teacher their readiness for the next step in oral language development. The teacher should always remember that every child is ready to take his next developmental step. What that step is depends upon the child's level of maturity, his experiential background and the purposes which he wishes to realize.

The teacher can ascertain with a reasonable degree of accuracy the normal expectancies at a given age; she may utilize the child's background of experience and bring to him many new experiences in social studies, science, literature and the other arts to enrich his understanding. Finally, the day-by-day living in the classroom can be so meaningful that the child is continually in the process of acquiring new verbal symbols to match his expanding concepts of increasing in ability to organize related ideas, of acquiring the amenities not only of speech but of courteous and thoughtful listening and of improving the tools of speech to meet his growing need for increased social participation. (11).

Although a creditable body of research has emerged in relation to the development of language in infancy and early childhood, the period of later childhood is relatively barren. Certain facts have been established. Vocabulary is increasing. The eight-year-old has an average vocabulary of aproximately 7,500 words. The vocabulary is enriched by the addition of many adjectives and adverbs and in the increased understanding of the meaning of words.

Gradually age mates become increasingly influential in determining many types of behavior including speech and manners. The family still maintains its influence in ideology and determines such matters as religion, morals, attitudes toward other races. Vocabulary increases rapidly as the child grows older. Children begin to value clarity and comprehensiveness in the expression of ideas. The interest of their peers in knowing all the details of an occurrence or a report serves as a great motivation to developing powers of organization of pertinent information. (8)

By the end of the period usually classified as later childhood—eleven to thirteen-children are able to analyze situations verbally. They have grown in power to interact with others in thinking through problems. If opportunity has been afforded for discussion of problems and issues of interest to them, children of this age have considerable skill in participation in group processes.

Readiness for Written Expression

The subject of readiness for written expression is practically unexplored in the research literature. Six-year-olds need writing in their school experiences chiefly for writing their names to identify paintings, work in process of construction, and papers. An occasional sign is needed for a store, truck or grade crossing in carrying community life activities forward. These needs are best met by manuscript writing. Children of this age have not acquired sufficient control of the small muscles to gain much skill in writing. Writing can be so laborious for young children that they can come to acquire distaste for all writing if it is required too early.

Throughout the entire elementary school the development of control in oral communication is far more important than written language. Speech is the essential tool of social living. Composition is a process of thinking. When children are able to think through their ideas for effective oral presentation, it is a short and an almost wholly mechanical step to put these ideas into written form. The factors which make for good oral expression are identical with those which produce effective written expression. To an extensive vocabulary, good sentence structure, interesting ideas effectively organized, the child must add only sufficient motivation to communicate with someone at a distance or to record experiences for future use to be ready for written expression. (1)

The teacher can prepare for that time by providing many occasions when she writes the plans for the day on the blackboard, takes down the story of a trip, or records at the children's dictation news of current interest. These compositions may be contributed sentence by sentence by members of the group or an experience of unusual interest may be contributed by an individual child. The teacher takes over the laborious task of writing, using capital letters and punctuation. Sometimes the story may be copied to be illustrated and taken home by the seven- or the eight-year-olds. Sometimes the group composition is neatly recorded by a pupil in a class scrapbook. (3) When children are freed from the mechanics of writing and spelling, original ideas frequently sparkle into delightful childlike expression. Group writing in the upper levels of the elementary school continues to be a valuable means of promoting exactness and precision, group thinking and group discussion. The product of such an activity will probably exceed the ability of any individual in the group

working alone and will help in setting sound and attainable standards in written expression.

Needed Research

No area is more in need of continued research than that of language development not only because of its importance in effective living but because of its complexity as an area of learning.

Research which would be helpful to teachers would include:

1. Analysis of learning experiences at all maturity levels to determine which are most conducive to speech development
2. Objective measures of linguistic development
3. Analyses of materials in the field of reading at various maturity levels in relation to the spoken and written vocabularies of the age group for whom the materials are designated.
4. The effect of environment on the child's language with special reference to
   a. Parental knowledge of child growth and development.
   b. Socio-economic status of family.
   c. Language other than English spoken in the home.
   d. Rural and urban situations.
5. Qualitative studies of oral and written language with their relationship to facility in the initial activities of learning to read and progress in the acquisition of more advanced reading skills.
6. The significance of language in total personality development.

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Readiness for Spelling

HENRY D. RINSLAND[1]

It is a strange commentary that although a vast amount of research has been carried on in the field of spelling during the past twenty-five years and much has been done in reading readiness, little has been done in readiness for spelling. Perhaps, readiness in spelling has been assumed when children are assigned the task of writing or when teachers judge that writing readiness has been psychologically born. A desire to spell may not be by itself a sufficient indication of readiness to introduce a spelling program either formal or informal, for not all children who want to read experience immediate success in reading, and it is very likely that this parallel situation exists in spelling although research is wanting at this point.

McIntyre and Hampton (5) suggest that readiness in spelling hinges upon the mental and physical maturity of the pupil; that the eye must be trained to move across a word from left to right; that a thorough teaching of phonics as a fundamental is necessary, although they admit that English words contain many nonphonetic elements. They plead for a spelling readiness program, but make no suggestion, other than those mentioned here, as to what the program should be.

Campsey and Beck (1) call attention only to the facts that muscular coordination may be a factor in spelling readiness, that the child's own pronunciation is highly important, that mental maturity, and a rich background of experience are important factors in determining the age of readiness.

Wilson (10) suggests that a major help in observing the approach of readiness in spelling is the beginning of a need which the child feels to express himself in writing, such as his name, a little letter to a member of the famliy, copying from his book or from things the teacher has written, and other well-known classroom stimuli. She thinks that formal spelling may be delayed until Grade III. The exact definition of formal spelling is not given although it is implied as being spelling with stimulation and assignment from a spelling book.

The only experiment reported in the literature in spelling readiness was conducted by Russell (7) in which 116 pupils were studied in first and second grades and each was given six group tests and seven individual tests. The results in some detail are as follows: The group participating in the rather direct type of reading instruction involving considerable phonics and early practices in handwriting made greater achievement in eleven out of twelve tests given, and ten out of twelve tests had a correlation with spelling ability in the second grade ranging from .67 to .88. It is probable that habits of attention directed to parts of the word, as seeing similarities and differences, are conducive to initial success in spelling. Spelling ability in the second grade was closely related to abilities in word recognition, paragraph meaning, the recognition of capitals and lower case letters, visual perception, and auditory perception. In the "phonic group" spelling ability was more highly correlated with reading ability than in the "little phonic group;" in the latter spelling ability was more closely related to chronological age than mental age. There seems to exist a constellation of certain skills which are basic in the language arts and can be taught. Spelling readiness seems to be acquired in the high first grade by most of the pupils involved; practically all the pupils studied can spell ten words and their teachers estimate that 2/5 to

[1]College of Education, University of Oklahoma.

1/4 can spell fifty words by the end of the first grade. A spelling readiness test, as such, is probably not needed in the primary grades because spelling ability can be tested directly and because spelling ability is closely related to reading ability as measured by the tests.

The discovery by Rinsland (6) of 5,099 different words in 353,874 running words in the oral and written work of first grade children, and 5,821 different words out of 408,540 running words in the written work of second grade children, shows that a great deal of word learning has been accomplished at these levels. The further fact that the first 1,000 words make up 92 per cent of all spoken and written words in Grade I and 94 per cent of all written words in Grade II, is evidence of the large amount of word knowledge children have. For the first grade, these occurrences range from 9 to 5.295 times per 100,000 running words and for the second grade, from 6.8 to 4,545.2 times per 100,000 running words. These data are a comparable measure of the usefulness of these first 1,000 words to children. Children are not only ready for spelling, they *are* spelling. The importance of the problem is undoubtedly intensified since this discovery. Certainly the systematic psychology of learning words can help children to do better what they are doing already.

The possibility that readiness in spelling and readiness in reading are similar is suggested by Gates and Russell (4) in the statement that a rich reading program in the first grade does much to prepare a pupil for a spelling program in the second grade; that although the mental age is necessary for beginning spelling is not known, it may be that, like reading, the program employed largely determines the mental age for learning successfully.

As Russell (8) has pointed out, good spellers are usually good readers in both speed and comprehension, and poor spellers are usually, although not quite so consistently, poor readers. Good spellers also tend to make fewer errors in such elements as enunciation and pronunciation, and because many items of the two subjects are similar and related, there are several similar and identical elements in spelling readiness and reading readiness. The interrelation of these two phases of language arts, with a definite relationship between good writing and spelling, but usually not speed in handwriting, suggests many avenues of experimentation. Research in spelling readiness as well as practices in first grade informal spelling will undoubtedly do much to facilitate the beginnings of formal spelling in the second grade.

Gates (2), as early as 1922, indicated the relationship between disabilities in spelling and reading. Gates (3) was convinced of the importance of the relationship of the two activities, and suggested that the spelling program take a very large responsibility for teaching the meaning of words and many of the facts and conventions about words; that many techniques should be mainly developed in spelling and applied or used in reading; that when a broader method of word analysis is employed, including skill in observing whole words, in dictating letters, monograms, syllables, and striking parts like double letters, better results are obtained. He believed that the whole word analysis and generalization program should comprise a uniform pattern of both reading and spelling.

Gates (3) also suggests that many concepts of meanings are implications of prefixes and suffixes, and that these are largely the problems of the spelling program; that just as the generalization and understanding approach has profited reading, so they would profit spelling. Besides, the same approach in reading and spelling would increase power and interest in both activities.

Undoubtedly many phases of reading and spelling should be taught, not as two subjects, but as phases or variations of one larger subject, the language arts, for there is much in common in the skills, achievements, and attitudes, in this total block of language experience. When the broader aspects of word analysis are employed in reading and spelling which include skill in observing words as wholes, in detecting syllables, phonograms, double letters and the like, there is emphasis and encouragement in the learning of both reading and spelling.

Word meanings contribute much to reading and similarly can contribute much to spelling, for learning to spell words outside of their meaningful situations is similar to rote memory of other isolated facts and things and is uninteresting and dull. When meanings in spelling and reading are related, children have more need for spelling because as they understand words in their own stories and statements they have a greater drive for writing them. As Gates (3) says, this situation is undoubtedly magnified in the use of capitalization, homonyms, abbreviations and contractions where, as in reading, exact knowledge of these factors is not so essential and is one of recognition; but in writing these things must be recalled and they must be accurate. When the child learns how to spell a word he is more likely to write it as it is a part of his expressive nature.

The implications here are obvious that the teacher of beginning reading should also be vitally concerned with the beginnings of spelling and the relationship between the two. Undoubtedly there are in this concept many suggestions for experimentation and research.

The large number of spoken and written words by first grade children and the meager research presented suggest that studies of readiness for spelling might be as profitable as the many findings in readiness for reading.

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Vocabulary Readiness

ETHEL MABIE FALK[1]

> A word is not a crystal, transparent and unchanged; it is the skin of a living thought and may vary greatly in color and content according to the circumstances and the time in which it is used.
>
> O. W. Holmes

Children's vocabularies have been studied by parents and research workers many times and in many ways. Vocabulary has been considered in relation to several different factors and by many different methods. In this article it would be difficult to compare results and impossible to pool the findings of all of these studies, so selections will be made of those having special significance for teachers.

What is the relation of intelligence to vocabulary?

Does social and economic status affect the child's vocabulary?

Does being an only child affect vocabulary?

Teachers are interested in the results of such studies, but they are more interested in discovering the relation of vocabulary growth to factors over which they have control. The emphasis in this summary is on studies that have implications for classroom use. Excellent summaries of general vocabulary studies have been made by Seegers (15) and (16). It is hoped that teachers will have access to these reports.

Size of Vocabularies

For many years the average child's vocabulary at entrance to first grade has been estimated at about 2500 words. Reports of studies concerned with size and nature of young children's vocabularies by Waldron, Leyman, Rinsland, Stoneburner, Galter, Fry, Trent, Madeline Horn, Uhrbrook, Madora H. Smith and many others are summarized in the Seventh Annual Research Bulletin of the National Conference on Research in English (15).

More recently Robert H. Seashore has startled students of language and provoked some controversy (17) by estimating the average child's vocabulary at entrance to grade one as 17,000 basic words plus 7,000 derivatives with the brighter children knowing as many as 40,000 (14).

Variations in counts of six-year-old children's vocabularies are to be expected when one considers that no one can possibly keep an accurate record of words used by a child of that age. The counts are estimates only, different assumptions underlie the method of estimating, and various techniques are used by investigators. But above all, there is the difficulty of recording the vocabulary or the responses of pre-school children.

By *vocabulary* some investigators mean all the different words that a child actually uses in speaking. Those studies have been limited to a very few children whose statements have been recorded at intervals by listeners or by recording devices from which tabulations are made later. Such studies do not indicate how many words other children of that age might say nor even the same children under different conditions and are therefore hardly sufficient data from which the teacher may generalize.

Other research workers have attempted to count the words which children understand by using a sampling of words from the dictionary. The techniques include (1) asking a child to tell in his own terms what a word means; (2) asking him to say whether he knows the word or not; (3) having him use the word in a phrase or sentence to show the meaning; or, (4) recognizing the correct meaning in a multiple choice test; and, (5) using pictures to

[1]Formerly Elementary Supervisor, Board of Education, Madison, Wisconsin.

stimulate his saying of the word. In addition to the difficulty of securing an accurate count of words known there is the problem of deciding when a child's knowledge of a word is accurate and complete enough to be useful to him; for example, is his understanding sufficient if he can give one of the many meanings for *back?* Does the giving of a definition mean that the child can use the word to express his own ideas so that others will understand what he means? How vague the child's understandings of words often are and also how new words are added to a speaking vocabulary are illustrated by the following incident: While her mother was giving her a bath a seven-year-old said, "You wash my left arm. My right one isn't available." Then with a chuckle she added, "What does *available* mean?" When her mother explained she said, "I thought so. I had heard you say that something wasn't 'available in the stores'."

Children who are less talkative might not reveal their confusions. Word counts indicate nothing of the quality of the words used nor the exactness with which they are used. With the present concern about personal and social adjustment teachers are interested also in the suitability of vocabulary for the occasion and the effect of language upon the attitudes of listeners. Children discriminate between tones very early:

When a four-year-old's mother told her that "shut up" was not a good way to talk to her playmates she explained, "Why, it's just another way of saying 'stop talking' only you are supposed to say it loud like this, SHUT UP!"

Seashore and other research workers have commented on the gap between the extensive, interesting vocabularies that children use and the sterility of ideas and repetition of words in primers. Hughes (7) was impressed with the stereotyped content, the lack of ongoing experience in the readers as contrasted with children's reports to their classmates.

On the other hand, many studies reviewed by Seegers indicate the opposite condition—that frequently there are children who need background information and help with the understanding of concepts in order to use the books published for first grade. Farm children may know nothing of the zoo or of city transportation while city children may not know *field, tractor, silo,* and other rural terms.

Teachers themselves point out that research students have ignored the satisfaction and stimulation that the child gains from the process of learning to read. For a brief time, while his aim is to identify words and to read independently he is excited by his accomplishment rather than by the meanings which the words convey. Easy vocabulary enables him to make the adjustment to independent reading early so that he is ready to attack the more varied, interesting content. On the other hand, if he cannot master the task of learning to read, even the most interesting content will be lost to him.

For a teacher the important conclusions to gain from the many studies of size of vocabularies of children are:

1. That estimates of the size of vocabularies reveal little about the number of words known by the individual child in her class.

2. That the variations among the pupils in a class may be very great.

3. That no study can reveal the potential vocabulary of a child in a stimulating environment.

4. That her selection of reading materials and her procedures in beginning reading should depend upon the size and quality of the vocabularies of the children whom she is teaching.

Discovering the Extent of Vocabulary Knowledge in a Class of Children

Both kindergarten and first-grade teachers would welcome some suggestions from research on the problem of discovering how adequate are the vocabularies of the pupils of their own

classes. Research has been confined to many studies of individual children by parents or observers through techniques too detailed for the teacher to use or to studies of large numbers of pupils by sampling and statistical procedures not accurate nor practical for classroom use.

Many readiness tests contain vocabulary sections which are helpful and suggestive although not completely reliable measures.

Classroom teachers themselves have devised plans. Kindergarten and first-grade teachers in Madison, Wisconsin, worked together in a study of the various aspects of readiness (2). One committee used pictures extensively both in discovering and in developing vocabulary. Another used the words of primers and prepimers. Each child was tested for his knowledge of the nouns found in the list. Lists of words that teachers may use in this way are given in several studies. A recent one has been compiled by MacLatchy (10). Although the statement is commonly made that vocabularies of readers are far too limited the Madison teachers found inadequate concepts among many children where home experiences were meager. They also discovered many children who were unable to express their ideas.

This leads to the importance of considering vocabulary as only one aspect of the child's language experience. Mary Fisher (4) comments, "When children do not talk about their work and play, how can the teacher discover what words they lack, or indeed, what if anything they think?"

Watts (19) also comments upon the importance of the child's learning to talk about what he has been or is doing to avoid, as he says (p. 44) "seeing without thinking, doing without talking, hearing without listening." Watts warns also of permitting children to use gestures rather than to describe or explain. "In a world where we are often pressed for time and looked to constantly for sympathy we are apt to take a meaning for granted when not always adequately expressed: 'You know what I mean' is a frequent locution among us. Therefore, the parent or the teacher who is really interested in the linguistic progress of children would do well, occasionally to misunderstand what is said and misunderstand deliberately though good humouredly when he is sure that a little extra effort would make the young speaker's meaning very much clearer both to himself and to others." (p. 42).

Madora H. Smith used questions, pictures, and objects to elicit vocabulary and she evolved a vocabulary test (18). Any teacher might use the same plan if she wished to test her class on a specific list of words.

Observations, frequent although brief, will reveal more of what the teacher needs to know about the child's vocabulary and language characteristics generally than formal testing. Because the inarticulate child often develops feelings of inferiority, has inadequate social skills, and is not able to progress normally and happily he should be the one studied most closely by the teacher. The verbal child is likely to demand attention so that the teacher is grateful to and forgetful of the quiet child who conceals his ignorance and his problems by being docile and unobtrusive. Brief notations on cards will be useful in planning the readiness program for the group and in evaluating progress later.

Concentrate on two or three children who are working in a group. Observe their ability to give each other precise directions, to differ without quarreling, to commend each other for doing something well. Watts comments that speaking centers at first around disputes, and suggests that teachers recognize argument as natural and help children to state differences adequately and cooly. "Otherwise it may be a long time before the need is felt for supporting assertions with a show of reason", p. 69. Piaget (12) who discovered only 61% of what he called "social speech" (in which the speaker is concerned about having a listener) among the

two children whom he observed comments upon this tendency to argue. That the activity upon which the children are engaged affects the nature of their speech was found in two other investigations where Piaget's technique was used in observing groups of children (8) and (9). Both found that the desire to communicate with others was conditioned by the situation. Mable (8) found that play requiring co-operation, the setting up of a store, for example, was more productive of communication than competitive games. These are indications that teachers will find the best oportunities for recording vocabulary and language in group activities that require playing and planning together.

Because of the importance of emotional tone in personal relations the teacher may well note on the record cards the child who forces his ideas upon others by a positive tone, the one who silences opposition by a scornful remark, the one who is hesitant about making a comment and says it shyly so that others disregard it, the chatterbox who talks much but has few ideas, etc.

Increasing the Vocabulary of the Child

The most significant factor in the increase of vocabulary is intelligence. There seems to be some indication that girls' vocabularies develop more rapidly than boys'. Richer home environment also seems to mean better vocabularies especially where adults in the family spend time with their children answering questions, reading stories, discussing things seen, and conversing about many things. Whatever the specific factors in vocabulary development are, it is evident that children's knowledge and vocabularies grow at approximately the same rate revealing the function of language in acquiring knowledge and the challenge to the school to increase vocabulary by enriching experience.

Children are eager to know the right names for the objects in their environment: The author had an illustration of that fact when her daughter was four. The child asked, "What's that?" as she pointed to the thermostat on the wall. Trying to use words that she thought the child would understand the mother explained that it told how warm the air in the room was and that if the air were cold the furnace would start and warm the room. The child listened tolerantly and then asked, "But what *is* it?" Again the mother explained that it was like the thermometer that hung outside the window. Again the child said, "But what *is* it?" Finally the mother said, "A thermostat." The child repeated the word and walked away satisfied. The entire explanation had been lost on her. All she really wanted was to know its name.

The story indicates that adults would do well to use the right names for objects many times when children do not fully comprehend the meaning. After all even adults find words like *democracy, kindness, tradition* taking on deeper and richer meaning with repeated experience. Yet who would deny their right to use a word before they know its meaning in full!

Excursions are an excellent source of vocabulary. Every teacher has observed casually what Alma Cantor (1) found out definitely in her study of excursions. She has stated that more than two hundred concepts were given background in experience through excursions. She suggested that cooperative planning by kindergarten and first-grade teachers would enhance the values to the children. The Madison teachers also recommend this joint planning to avoid duplication of trips and to enable first-grade teachers to build on the background provided by earlier trips (2).

Two cautions should be sounded. One is that observation alone does not increase vocabulary. Unless the teacher or parent or a classmate who knows answers questions, supplies the words for the object or the situation, and discusses the trip the child has no way to acquire the new words that the excursion could

provide. He might see a mole crawling on the ground or discover a butterfly emerging from a chrysalis without getting any of the words necessary to describe the incident to someone else. *Vocabulary is increased not by the experience alone but by the discussion that accompanies the experience.*

This fact, the need to talk about what they see, makes necessary and advisable the small group excursion so that every child may see, ask questions, and talk about what he sees. Some teachers have asked parents either to conduct the excursion to a farm, the library, the lake shore, the corner grocery, etc. or to provide the remainder of the class with a story hour while the teacher conducts the excursion. The latter method seems to give more effective results, particularly in pleasurable relations between the visiting parent and the children. Ordinarily the teacher is more skilled in conducting trips.

A second caution is the need to correct misunderstandings and wrong concepts through discussion. The little girl who visited a pet hospital and heard about distemper shots said they were "Shots that you give to children so they won't get into bad tempers." If children are encouraged to talk about their confusion over the words they hear they can avoid misunderstanding and laugh with their parents and teachers as they recall what they "used to think."

Parents and teachers should be extremely alert in discovering what experiences the child lacks because children learn early to conceal their inadequacies in silence. A first-grade teacher found to her amazement that only a few children in her room had ever seen a sunset. They lived in an area where buildings hid the sun in the early evening.

One study among others that indicates the lack of experience and paucity of concepts among kindergarten pupils was made by Pratt and Meighen (13). They report that among 435 children only 65 had ever attended a circus. While 83 per cent of the children reported that they had visited farms, only 48 per cent knew where the farmer got eggs. This study revealed many examples of the statement that the experience in itself does not provide either a clear understanding of what the teacher may assume that the child is learning nor the specific vocabulary that the experience is supposed to teach. It must include explanation and discussion that will clarify concepts.

Children and adults are often talking different languages. We must constantly challenge the meanings that children are gaining and ask them to question what they do not understand. A mother reading "A Wood's Story" to her child came to the incident in which the beaver climbed up on the *bank*. The child asked how a beaver could do that. The mother discovered during the conversation that the child had two meanings for bank, her own little savings bank and the big stone bank building down town. Neither meaning fitted into the story.

A child may use a word correctly many times but on some occasion reveal that his meaning for it was not accurate, as in the case of the child who said, "I have lots of *parents*, Mommy, Daddy, Grandma, Aunt Ella and Susan (the sitter)." When asked what a *parent* was the child replied, "Someone who takes care of me." To many words the child attaches a wrong meaning before getting a complete, accurate one. Only an alert teacher who gives children constant practice in the use of the new words they are learning can discover what meanings they are attaching to them.

A mother whose child has many books places the stories that her child has heard second in importance to conversation as a source of vocabulary growth. A few of the books mentioned as arousing questions and provoking repetition of words were *This is the World, Friendship Valley, The Pull-Out Picture Book, The Little House, The Raccoon Twins*, and *The Little Island*. As with excursions it is important

to encourage the child to question the reader about words that he does not understand. Books should be selected within the level of comprehension of the class but with occasional new and interesting words that require the child to stretch his vocabulary.

Needed Research in Vocabulary

Group Research by Classroom Teachers

Much valuable information could be discovered if two or more kindergarten or first-grade teachers would conduct identical studies with their classes, comparing and compiling results.

Possible areas to explore in this way are:

1. The effect of excursions upon vocabulary and language ability.
2. A study of story books most effective in developing vocabulary and stimulating discussion.
3. The effectiveness of a direct attack upon vocabulary, making sentences to show the different meanings of a word, asking children to give the words suggested by pictures, etc.
4. The effect of size of the conversation of the group upon vocabulary growth.

The teacher's principal concern is how to go about building richer understandings. Usually she must discover for herself which trips are most productive, which stories are most helpful, which discussions most stimulating.

Parent Co-operation in Research

To date, the studies of the effect of comic books upon vocabulary have given little cause for serious concern, but many parents are not convinced. They would be interested in working with teachers on a study of the effects of radio and of comic books upon the language and particularly the attitudes of children.

Parents would be glad to co-operate with another type of study by arranging for their children to have experiences that involve home participation. Such concepts as *level measurement, pre-heat, quarter* of a cup, *sifter,* the distinction between *stir, beat,* and *fold* or between *boil, broil,* and *bake* may come from having boys and girls help mother with the cooking. Gardening, sewing, cleaning, taking care of younger children, games, and family celebrations are all valuable for such a study.

Too often parents feel that the only way in which they can broaden their children's lives and language is through travel. They are not aware of the possibilities of their own homes and communities and particularly of the out-of-doors for building vocabulary.

Testing Techniques

There is need for more adequate testing tools for measuring vocabulary and language readiness.

The Relation between Vocabulary Growth and Other Language Ability

Does having the right word to express his meaning make the child more willing to express his ideas, avoid a quarrel by explaining, or make friends by discussing common interests?

Does the child's vocabulary affect his status in his group, his popularity with other children, make him quicker to understand what others are saying?

Since the child's ability to express himself plays so large a part in his happiness we cannot be content until research invades these more subtle aspects of language growth. The methods of study have not yet been devised but they will be if our ingenuity and our efforts are used to that end.

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Readiness for Handwriting

ALTHEA BEERY[1]

Research Studies

Gates, A. I. and Taylor, Grace A. "The Acquisition of Motor Control in Writing by Young Children," *Teachers College Record*, XXIV. (Nov. 1923), pp. 459-68.

This study was planned to determine the relative effectiveness of direct learning by use of a model which the children attempted to copy, as contrasted with some form of mechanical supplementation or control. The form used for this study was tracing the letters on thin paper through which the model could be clearly seen.

The subjects were seventy children from the Horace Mann kindergarten, after all children who had had experience in handwriting were eliminated. They were superior for their age. The children were divided into two groups, a tracing group and a copying group, paired to give approximately equal groups with respect to chronological and mental ages, physical and educational maturity, and motor ability.

The subjects were to learn to write in cursive writing, the letters *a b c d e* and *f g h i j*. Each child was supplied with a beginner's pencil and a manila tag board twelve inches long on which was lettered in black ink *a b c d e* (and later another lettered *f g h i j*). The tracing group was also supplied with a folded piece of thin paper which fitted over the top of the card.

In each five-minute daily practice period the children wrote or traced the letters of the series in order, repeating the series as often as they had time.

The tracing group practiced five days on the *a b c d e* series, then took a test on copying, spent five more days tracing the same series, and ended the first series with two days of copying. After a few days this group took a test in copying the *f g h i j* series, spent nine days in tracing, and ended with two days of copying.

The writing group had eight days of copying the first series and eight days of copying the second series, making a total of sixteen days as compared with twenty-four days for the tracing group.

Findings: The tracing group was interested in tracing and earned high scores in it. They were quite baffled, however, when asked to write the same letters.

When the second series was started and both groups were asked to copy the letters *f g h i j* which they had neither written nor copied before, both groups earned low scores, but the transfer was much smaller for the tracing group.

The final average score of the writing group was significantly higher than the average score of the tracing group. In fact, the writing group with only two-thirds the amount of practice time earned a score almost twice as high (26.2 and 15.0 respectively). The authors concluded, "Tracing and writing are quite different functions although they embrace some common elements. Tracing doubtless fails to develop certain reactions which writing requires, and establishes others which are irrelevant and misleading and therefore must be broken when one attempts to write. ——It appears that one should learn to write by writing."

Hertzberg, O. C. *A Comparative Study of Different Methods Used in Teaching Beginners to Write.* Teachers College Contributions to Education, No. 214 (1926).

The purpose of this study was to measure the relative effectiveness of the direct learning method of teaching beginners to write as con-

[1]Primary Supervisor, Cincinnati Public Schools, Cincinnati, Ohio.

trasted with methods involving the use of various mechanical devices. It was used to supplement and confirm the experiment by Gates and Taylor.

Subjects were four equated groups of kindergarten children from three representative public schools in New York City. The groups were finally equated by pairing children on the basis of results of a motor test (involving copying seven simple characters) and by arranging groups with approximately the same averages and standard deviations in mental age as measured by the Pintner-Cunningham Primary Mental Test.

A scale of 11 points was evolved for scoring the children's responses on the motor test. Rating was done independently by two scorers. A similar scale of 11 points was constructed to use in scoring the results of the children's writing. It too was used independently by the two scorers with satisfactory agreement.

The teachers were rotated in order to eliminate variation in teacher competence from the results. The final comparisons were made from 120 cases, 30 for each method.

Method I employed three mechanical devices: (1) groove tracing, (2) sandpaper outline tracing, (3) finger tracing of the model.

Method II required the tracing with a pencil of the model copied through transparent paper.

Method III, the direct learning method, involved copying of the model placed directly above the child's practice paper.

Method IV, a combination method, required the children to use Method I the first five days, Method II the second five days and Method III the third five days.

During the first fifteen days of the experiment the children received daily training for five minutes on the cursive form of the words *cut, run,* and *cat* (five days for each). Tests in actual writing were given to all children in the experiment during the last half of the practice period each fifth day. On the last seven days of the experiment all children used the direct learning method. For five days they practiced the word *rain;* on the last two days they practiced and were tested on the word *cut,* the same word used in the beginning of the experiment.

Findings of the study: The direct learning method was found to be clearly superior to the other three methods; the combination method superior to the two methods which employed mechanical devices. Tracing was very slightly superior to the groove and finger tracing method.

The ability of the child on the motor test offered the best prediction of readiness for writing (r. of .746). The prediction of success was raised to .769 when mental age was used as an additional factor. Chronological age within the limits of these kindergarten groups added nothing to the value of the prediction. The study did not (nor was it planned to) prove that kindergarten children should be taught to write. Nor did it make any comparison between readiness for cursive writing versus readiness for manuscript writing. Equally untouched in this study was the child's social need for writing as a factor in determining readiness for writing.

Hildreth, Gertrude, "Copying Manuscript and Cursive Writing," *Childhood Education,* XIII (1936), pp. 127-28, 142.

The purpose of this study was to compare the relative facility with which children of kindergarten age, none of whom had received formal writing practice, could copy manuscript and cursive forms.

The twenty-six children tested averaged five years, eight months of age and had a median I. Q. of 118. In general, they were from homes of professional people.

The children were presented with a copy in cursive form of the sentence "See my dog." and asked to copy it. They were then given the same

sentence in manuscript form and asked to copy it.

A tabulation was made of the number of letters and the number of whole words written correctly. Correctly written letters were six times as frequent and correctly written words twelve times as frequent in manuscript writing as in cursive:

Number of manuscript letters correct —180.
Number of cursive letters correct —30
Number of words in manuscript style correct —59.
Number of words in cursive tyle correct —5

The comments of the children while attempting to copy in the two styles of writing revealed frustration during the copying of the cursive form and confidence and satisfaction in their work as they copied the manuscript form.

Hildreth, Gertrude, "Developmental Sequences in Name Writing," *Child Development*, VII (Dec. 1936), pp. 291-303.

The purpose of this study was to verify the extent to which the efforts at name writing of children from 3 to 6½ years of age constituted a significant developmental sign.

One hundred and seventy children (85 boys and 85 girls) who had not been directly instructed in writing their names were used in the study. They ranged in age from 3 years to 6 years 6 months. They constituted the group of children who for a two year period were either enrolled or applying for admission to a private school in New York. The median I. Q. of the group was approximately 120.

Each child was tested individually in the ability to write his name. The request to write their names usually followed opportunities to draw. The younger children were given large crayons and sheets of paper for the writing experience. The older children used kindergarten pencils and paper with one-inch rulings. When separate letters appeared they were almost invariably printed capitals.

All samples of the children's name-writing were arranged in order of their merit within each half-year age interval. The median quality for each of the seven age groups was found by locating the median paper. Although in the quality of their writing the most mature writers in each age interval overlapped the immature writers in the next older age group, distinctive charateristics in each age group were found as follows:

Level I. Ages 3-0 to 3-5. Something beyond aimless scribbling appears. There is considerable tendency toward the horizontal and more systematic "up and down" scratching.

Level II. Ages 3-6 to 3-11. Still greater tendency toward horizontal movement with greater regularity in the vertical strokes. Some slight tendency to make discrete symbol units, though these are scarcely recognizable as letters.

Level III. Ages 4-0 to 4-5. Separate symbol units still more easily discerned—waviness in imitation of adult writing has almost ceased with the child's new recognition of separate letter units. Few letter units are recognizable as such. There is more constriction in space.

Level IV. Ages 4-6 to 4-11. At this level correctly formed letters are mixed with many which are incorrectly formed. There was little correct spelling. Letters are often rearranged or omitted. Definitely this is a transition stage. Increased interest and pride in achievement are noted.

Level V. Ages 5-0 to 5-5. There is correct spelling of first name or nickname with occasional reversals or letter malformations. There is more firmness in control, more regularity, more ease and rapidity, and better alignment and more interest.

Level VI. Ages 5-6 to 5-11. Improvement is obvious. There are still occasional letter reversals. There is less variation from child to child.

Level VII. Ages 6-0 to 6-5. Chief improvement is speed in writing. There is surprising consistency; many can also write their last name.

In summary, the study shows a steady improvement in the ability of superior children between the ages of 3 years and 6 years 6 months to write their own names without formal instruction in writing. Undoubtedly less gifted children would pass through the same stages. The author's suggestion, however, that the median age for each level be multiplied by 120% to find the corresponding age for similar achievement for average children would seem to weight intelligence too heavily according to other research in motor coordination development.

Vorrhis, Thelma, *The Relative Merits of Cursive and Manuscript Writing*. Lincoln School Research Studies, Bureau of Publications, Teachers College, (1931).

The purpose of this study was to measure the relative influence of cursive and manuscript writing on first grade reading. Six entering classes of first grade children in a public school in New York City, classified so as to be substantially equivalent with respect to age, intelligence, reading status, and attendance or non-attendance in kindergarten, were used in the experiment. Instruction, other than in handwriting, was the same for all. Three of the groups were taught manuscript writing and three, cursive writing. Large beginning pencils and cursive or script copies of the same words were given to each child for daily practice. Two of the teachers were able to exchange cursive and manuscript classes in the middle of the year.

The children were tested in January, April, and June on the Gates Primary Reading Tests. The manuscript groups read significantly better on all tests; the June means on the Gates Word Recognition Test being a score of 18.79 for the manuscript groups and 8.70 for the cursive groups with a standard difference of 7.51. Significant differences in favor of those taught manuscript were found with bright, average, and dull pupils.

With respect to speed and quality of writing, the children writing manuscript were superior in speed, while those writing cursive were slightly superior in quality.

Implications of Research for the Classroom Teacher

This section of the report will not be limited to the studies summarized above but will be an interpretation of various studies that guide the classroom teacher in determining when children should be taught to write and what the nature of the first writing experiences should be.

Dr. Freeman (4) in an article in a yearbook of the National Society for the Study of Education published ten years ago wrote:

> On the practical problem as to when instruction in handwriting should begin there is some difference of opinion, but no known direct evidence.

And the studies summarized so far in this report antedate that publication!

True it is that there is no definitive research bearing directly on the optimum time for introducing children to writing. A number of studies, however, throw light on the abilities and maturation related to success in a sensori-motor skill such as handwriting.

There has been much research on the motor development of the preschool child. Basic investigations have also been made of the handwriting movement itself, although many of them are restricted to cursive writing and deal with older children and adults.

Gesell (9) has shown that even with the infant the eye directs the hand. Readiness for writing, accordingly, depends upon sufficient maturity of visual perception as well as upon

motor co-ordination. In the earliest years of childhood the development of these depends far more on inner maturation of the neuro-muscular system and on the self-initiated activity of the child than on any external guidance. Maturation alone will not develop special skills such as handwriting, and until there is sufficient maturation of structure it is folly to give special practice.

Motor Co-ordination

There is some evidence that with practice children grow more rapidly in some of the more complex motor co-ordination abilities than they otherwise would. For example, Mirenva (32), in an experiment with ten pairs of twins from 4 years to 4½ years of age, gave the twin in each case who was inferior in motor ability practice on three kinds of psycho-motor skills. At the end of the training period the twins with special practice had far outstripped their controls—farther in the complex psycho-motor functions than in the more elementary skill of jumping. Mattson (29), in a carefully controlled experiment with children 4½ years to 6 years in learning to roll a ball in a maze found the same results. In a study of the ability of children from 2 years to 5 years to cut along a certain path, Karr (23), found a correlation of .71 with C. A. and .85 with M. A. Girls and those children who had had home practice in cutting made slightly higher scores. Other studies have shown little correlation with mental ability. Wellman (42) also found girls slightly superior in tasks requiring fine motor co-ordination. On the contrary, Bryan (1) in a classic study of voluntary motor ability found boys superior at all ages in precision, steadiness, and speed of movement.

In general, with very young children, motor co-ordination seems to be chiefly dependent on age and inner maturation (9,44). Through the kindergarten period at least it would seem that development should come from many informal opportunities to cut, to color, to draw, to paint, and to work with clay.

It would be advantageous if handedness could be established for a given child before systematic handwriting instruction is given. Jones (22) has shown that handedness for many children is not the *either-or* proposition that is sometimes assumed. He found a gradual increase with age in the use of the right hand, at least until the age of seven.

Visual Perception

That visual perception and analysis play an important part in manual learning cannot be denied. In an experiment by Melcher (30) in teaching children to trace a slot maze, visual guidance alone was more effective than manual guidance either with or without vision.

Welch (41) established that, with children from 1 to 5 years of age, discrimination on the basis of size came earlier than shape. Leuba (26), using children from 1½ to 5½, found that they could distinguish some of the elements of simple geometric figures but that the process was far from complete. Gesell (9) found that most five-year-olds could match seven out of ten geometric figures. Hurlock (20) studied 2,292 drawings of children from kindergarten and grades 1 and 2 which were obtained as a result of asking them to draw a man and eight other familiar objects from memory. He found that accuracy of perception increased with chronological age, and to a lesser degree, with mental age.

With junior high school children Leggitt (25) produced considerable improvement of quality in writing within a two-week period from practice in perception through matching strokes with appropriate letters.

Related to perceptual maturity is the ability to perceive objects properly oriented. In a study by Davidson (3) practically all kindergarten children selected one or more reversed forms or words. There was a distinct decrease in the number of children making reversal errors, and in the number of errors per child, with increasing chronological and mental age. Five-and-a-

half seemed to be the age at which this decrease was most marked. Hildreth (18) found that perception was more accurate when a sample was before children and that there were more reversals in writing from memory than in copying.

In another study by the same investigator (17) children of average ability in the second grade of a public school when asked to write or draw twenty-five simple designs or words that had been briefly exposed averaged only .7 reversals per child compared with an average of 10 per child made by superior children from a private school. She attributed the difference to greater familiarity with the symbols because of earlier experiences in reading and writing in the public school. Kirk and Kirk (24) found that young bright children made more reversals in writing than dull older children.

Sequences in Drawing

A study of the child's development in drawing will offer clues as to his readiness for handwriting instruction. Although children vary in their rate of development, they seem to go through essentially the some sequences: from aimless scribbling, to scribbling named, to a generalized portrayal of what they know rather than what they see, to increasing detail and realism (14, 20, 33). In imitative drawing Gessell (9) found the perpendicular stoke preceded the horizontal. Most of his four-year-olds could copy a circle and a cross. Most five-year-olds could copy a square and a triangle.

Effect of the Handwriting Program

Presumably the degree of maturity necessary for success in learning to write is somewhat dependent upon the style of writing used, the methods pursued, and the standards of writing expected. Some aspects of the beginning writing program are covered in the discussion below.

The evidence is overwhelming both from research and present practice, that beginners find manuscript writing easier than cursive (7, 12, 15). They make more legible copies, there are less random movements, and progress is more rapid. Gates and Brown (7) found that the manuscript writing of pupils of first grade was somewhat better in quality and that they developed considerably greater initial speed. A recent survey by Freeman (5) establishes the fact that about 85% of cities now use manuscript writing in first and second grade. He found that the majority of those responding indicated that the change from manuscript to cursive is made the latter half of second grade. Polkinghorne (37) who questionnaired a somewhat different group, including private schools and teachers' colleges, found the same percent using manuscript in first grade, but two thirds of the schools reporting in her study did not change to cursive before third grade. This may indicate the beginning of a trend to postpone the introduction of cursive until the third grade.

Numerous studies, in addition to the one summarized in this report, have shown that manuscript writing facilitates learning to read (2, 19, 27, 39). Greater ease in written expression is often stated as one of the advantages of manuscript writing. Cutright (2) reports that, with matched groups in second grade, children who wrote manuscript used a greater number of different words in original compositions and misspelled fewer words.

What characterizes the writing of young children? In pressure, speed, and uniformity of movement children make steady progress as they grow older (1, 4, 10, 12). The young child makes longer pauses between strokes. There is more unevenness in pressure and greater variation in speed. Manuscript writing with its separate strokes seems to meet the needs of beginners better than cursive. The manuscript scales, studies such as the one reviewed from Hildreth (15), and the experience of classroom teachers indicate that many six-year-olds can learn to print legibly.

What should be the size of writing of young children? Children have more control on large forms than on small ones according to a study (34) involving hundreds of kindergarten and first grade children from widely scattered parts of the country. In this study chronological age and mental age were also associated with greater accuracy and control. Nystrom (36) reports that the good writers in grades 2, 3, and 4 in the Minneapolis schools wrote larger than the poor writers in those grades.

Early use of the blackboard or easel and paper with one-inch rulings are frequently recommended for first grade writing. These recommendations are in harmony with studies which show that the development of large muscles in the trunk, shoulders, and arms comes before the finer co-ordinations involving the accessory muscles of hands and fingers. Bryan (1) found that these were still developing rapidly for two or three years after the age of six.

What place has practice in beginning writing? In one study (31), with all factors except amount and nature of practice equated as much as possible, it was found that the group which wrote only to answer functional needs such as labeling, sending simple messages, and the like, made as much progress in learning to write as another first grade which had daily systematic practice, in spite of the fact that the first group had on the average forty minutes less practice a week. On the other hand, studies of the more complex motor co-ordination skills with preschool children indicate that children who have specific guided practice excel those whose growth is dependent on maturation or general activities alone. The implication seems to be that practice is necessary but that the amount can be reduced by the use of writing in situations which have meaning for children. Tracing and "putting children through" the motions involved in writing are ineffective as compared with the writing act itself (8, 13).

Tests for gauging the readiness of children for writing experience are needed. Several of the reading readiness tests now in use include matching or copying of geometric figures and some include tests of manual dexterity. Correlations of these sub-tests with writing achievement at the end of first grade might be studied. Possibly, too, some of the psycho-physical tests used in Dr. Gates' and the Horace Mann investigations which showed low correlation with reading achievement would be much more predictive of writing success.

At the present time there is no single measure for predicting writing readiness. The Motor Test employed in Hertzberg's study (13) and the formula for using it to predict writing success have not been made available commercially. Lourenco (28) has described the "A B C" Tests which have been widely used in South America for classifying children for both writing and reading instruction, but they are not available in English, and apparently they duplicate rather largely our reading readiness tests. The interest and ability which average children show in learning to write their own names and certain letters and figures without formal instruction would be suggestive, if their correlation with writing success were established. It is probable that the word and letter perception sub-tests which showed such high predictive value for reading in the Gates investigation (6) would correlate highly with writing success also.

Sequences of Language Development

Studies in language development of young children show that infants understand spoken language before they can talk and that their early vocalizations imitate the cadence and continuity of the speech patterns they hear. Young children in their early attempts to write also mirror the general form of adult writing before they are conscious of individual letters (16). Growth in oral language precedes learning to read. Should learning to read precede learning to write? The studies of visual percep-

tion and the greater incidence of reversals in copying over matching would seem to so indicate. This reviewer knows of no investigation to determine whether children learn to write more easily after a beginning in reading has been made than if instruction in writing and reading parallel each other. The effect on both reading and writing should be studied. It is obvious that if writing is to be meaningful, it cannot outstrip the recognition vocabulary.

Warner (4) in a study of the relationship between growth in handwriting ability and the growth of the organism as a whole found that handwriting growth did not parallel the general growth pattern as closely as some other abilities did, but on the whole was in harmony with it. Wittler (43) found that "anatomic age as expressed in skeletal development appeared irrelevant as a determiner of either rate or quality of handwriting."

A basic consideration, however, is the age at which the child has a real need for writing. The known facts about individual variation in developmental age would indicate that the optimum time for beginning writing instruction would vary from group to group and from child to child within the group.

In Summary

From research and what we know about child development, handwriting guidance can be safely given to a child when:

1. He has spontaneously shown an interest in learning to print his own name.
2. He has developed facility in the use of scissors, crayons, the paint brush, and the pencil in a variety of informal activities.
3. He can copy simple geometric or letter-like characters with proper orientation.
4. He has established a dominant hand.
5. He has participated in composing and sending written messages.
6. He senses a personal need to learn to write.
7. He can be introduced to a writing program that is geared to his level of maturity.

Needed Research

Throughout Section II the need for further research was implied. Investigation should be planned to find answers to the following questions.

1. How long after reading instruction is started should learning to write be initiated?
2. What combination of tests will give the best prediction of writing success and indicate the status of the child relative to writing readiness?
3. What is the correlation between reading readiness tests and handwriting achievement?
4. At what ages do average children attain the sequences in name writing indicated by the Hildreth study?
5. What is the relative effectiveness of demonstration and of the child's comparison of his product with the copy? Should the child copy from a model on his desk or from the blackboard? Should the model be removed before the child starts to write?

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