A summary of research in reading readiness.

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A Summary of Research in
Reading Readiness

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This study is part of a summary of research in the reading and language arts fields in which the experimental studies done at Boston University between 1930 and 1953 were reviewed. The complete study was done by: Evelyn Crocker, Ruth Cullen, John Deasy, Marjorie Follansbee, Sylvia Gavel, Claire Grossman, Mary Holmes, Ruth Lurie, Anne Melker, Viola Petrocelli, and Harriett Wilcox.
The experimental studies done in the area of reading readiness at Boston University between 1932 and 1953 are about forty in number. They may be classified as follows: Vocabulary Needs in Kindergarten and First Grade; Auditory and Visual Discrimination; Sex Differences in Reading Readiness; Rate of Learning in Grade One; Word Perception; The Effect of Kindergarten Training, Individual Instruction, Certain Readiness Skills, and First Grade Absence on Reading Achievement; Test Analysis, Construction, and Evaluation.

Vocabulary Needs in Kindergarten and First Grade.

To discover the child's reactions to the vocabulary in children's literature and to determine the value of instruction in it, May selected 25 of the most commonly read stories, poems, and fables. One word was chosen from each rhyme, and four words were selected from each story and fable, making a total list of 100 words. Sixty-five children were tested individually as follows: first a complete sentence containing the word was read to determine whether the meaning of the word was intensified by its position in the story; next the sentence was shortened to a phrase with the specific word in its original place; finally the word alone was pronounced. The population was then divided into a control group of 31 children with a mean C.A. of 5-9 and a mean M.A. of 6-5, and an experimental group
of 32 children with a mean C.A. of 5-11 and a mean M.A. of 6-3. The experimental group was given 15 minutes of study four days a week for four months on the selected vocabulary. At the end of the experiment the groups were re-tested. The mean scores on the pre-test were 38.6 for the control group and 29.9 for the experimental group. On the re-test the mean scores were 42.8 for the control group and 56.7 for the experimental group. In neither test were the differences statistically significant. When considering the mean gain made by each group, however, the difference was significantly in favor of the experimental group (C.R. 5.6).

Enright chose 253 words from 63 textbooks, classified them in 18 experiences fields, and built them into a picture test. The population tested included 96 children, 32 from each of three kindergartens: group I was from a rural community with a minimum age requirement of 5.0; groups II and III, both from suburban communities had minimum age requirements of 4-10 and 4-5 respectively. In the total average percentages of all three groups there were three fields with percentages less than 50 and three fields with percentages of 80 or above. There were slightly higher percentages in favor of boys over girls in each of the three groups. The range of percents of the number of words known by each group was: Group I, 96.2 to 48.6; Group II, 87.0 to 31.6; Group III, 79.9 to 25.9. The higher the minimum age requirements, the larger the word meaning vocabulary.

From 31 basal readers Thompson chose 326 words which were built into a picture test of 22 experience fields. Forty-five first grade children were then tested individually. Twenty-five were boys with a mean C.A. of 4-11 and a mean M.A. of 4-11. Twenty
were girls with a mean C.A. of 5-0 and a mean M.A. of 4-10. There were no experience fields with complete knowledge nor any with complete lack of knowledge. The group knew 80% or more of the words in two fields and 50% or less of the words in ten fields. The boys had greater vocabulary knowledge in 19 fields, the girls in three fields.

In a study by Bannon, 23 books including pre-primers, primers, and first readers were analyzed to discover words which might cause confusion. One hundred words, classified in 10 experience fields, were used to develop an individual multiple choice test using pictures. Thirty boys and thirty girls from grade one were tested. Both the mean C.A. and the mean M.A. for the group were 5-3. The field which was most familiar to the group was transportation with 74.5% of the words known; nature with 52.1% of the words known was least familiar. From the 100 words there were only two which had a significant difference in favor of the girls. Otherwise there were no essential differences between comprehension of boys and girls.

In each of thirty stories commonly read to kindergarten children, Dickson counted the words and listed them alphabetically. The list was then compared with the International Kindergarten Union list, Hodgkins' tabulation, and Rinsland's list of 14,571 words representing the vocabulary of children in grades one to eight. There was a total of 3,061 words. Since 125 of the words did not appear on any of the three lists used for comparison and 395 appeared only on the Rinsland list, it seemed that some of the stories needed to be re-written or that children should be provided with some vocabulary enrichment before such stories are read to them.

A total of 41 experiences were chosen by Sullivan from the
first grade books of the Scott Foresman Series. The 41 experiences in six general experience areas were used to construct a picture test which was administered to 354 first grade children. The mean C.A. and the mean M.A. for the group, which included 180 boys and 174 girls, were both 73 months. The area containing the greatest number of experiences that the children had had was home and community; the area with the fewest was science. The boys had had 4,068 experiences and the girls only 3,840. The girls had more experiences than the boys only in the area of recreation. Children who had had a year of kindergarten had slightly more experiences than those not having had it.

From the first year books of the Scott Foresman series and from the American Singer Book I and Sentence Songs for Little Singers, Dunn took 73 homonyms, some with the same spelling and others with different spelling. The teacher pronounced the 73 words to each of 50 children who gave as many meanings as he knew for the words. Ten words had complete understanding; nine words had no response. Fifty-one words had incorrect responses, some because of poor auditory discrimination e.g. responses for "find" were given to "fine". Twenty-six words necessary for understanding first grade work were known by 50 percent or less of the children, while 14 words were known better in the form not necessary for understanding first grade reading.

The Ginn Basic Readers for the first grade were examined by Phillips. One hundred words were selected for use in a picture test. For purposes of analysis the words were classified into six experience areas. The test was administered to 167 first grade children: 93 boys and 74 girls. The mean C.A. of the boys was 6-10
and of the girls was 6-8. The percent of the group with correct responses in the highest and lowest areas respectively was 95.6% for people and 78.7% for play. Forty-two words were known by 90 or more percent of the group, and four words were known by less than 50 percent of the group. The mean score was only slightly in favor of the girls (girls 84.3 and boys 81.5).

Using a list of words chosen by Spainhour from 50 basal readers and by Smith from 50 supplementary readers, Heffer and Waters chose 334 nouns which were built into an experience test consisting entirely of pictures divided into 24 interest fields. Heffer and Waters tested a group of 51 first grade children from rural areas and 43 first grade children from city areas. Ninety-eight words were known by 100 percent of the city children and only 43 words were known by 100 percent of the rural children. In the city group 28 words were known by 50 percent or less while in the rural group 43 words were known by 50 percent or less. The city children had the test later in the year than the other group and had also attended kindergarten while the rural children had not. The test was administered by Smith to 72 first grade children. There was complete knowledge only in the field of parties. No area had complete failure. The words concerning town and country, and people were known by fewer than 50 percent of the children.

Spainhour tested 30 first grade pupils who had had little kindergarten training. The field of fruits and vegetables was most familiar to the group, 99.6% of the children knew the words, while seasons was the least familiar, 40.0% of the group knew the words. Only in the field of flowers was there much difference between the number of girls and the number of boys knowing the words; 34.8% more
girls than boys knew the words in that area.

Auditory and Visual Discrimination.

29/ Murphy constructed exercises to develop auditory discrimination which were used for thirty days, teaching first and second grade children - 55 in the experimental group and 50 in the control group. The experimental group had a mean C.A. of 7.1 and M.A. of 7.3; the control group had a mean C.A. of 6.9 and M.A. of 7.8. Learning rate scores were 2.5 for the experimental group and 1.7 for the control group on the preliminary test, and 5.2 and 2.7 respectively on the final test. The mean gain was in favor of the experimental group, C.R. 4.1. Scores on an original individual auditory test given at the end of the experiment were 27.1 for the experimental group and 10.7 for the control group, C.R. 13.1. The results of the Detroit Word Recognition Test were not statistically significant.

To evaluate the effect of specific training in auditory and visual discrimination on learning rate, reading achievement, visual perception of words, and auditory discrimination between likenesses and differences in words, Murphy 30/ provided ten-minute lessons to be used for thirty consecutive days by groups of first grade children. The lessons for one group were to develop auditory discrimination, for a second group were to develop visual discrimination, and for a third to develop both auditory and visual discrimination. A fourth group was given no specific training. Each group consisted of 75 children who had been matched exactly on learning rate scores, within three month on M.A., and as closely as possible on the scores of a reading readiness test and an original test of auditory and visual discrimination. The mean score on the Detroit Word
Recognition Test given at the end of the experiment in November were 8.1 for the combined group, 7.2 for the visual group, 4.2 for the auditory group, and 2.5 for the control group. On an oral reading inventory test given in February the scores were 93.4 for the combined group, 85.0 for the visual group, 75.7 for the combined group, and 59.4 for the control group. The scores on a second form of the Detroit Word Recognition test given in June were: combined group 21.5, visual group 19.1, auditory group 20.0, control group 14.5. In September the learning rate score was 1.9 in all four groups; the November scores 4.5 for the combined group, 4.5 for the visual group, 4.3 for the auditory group, and 2.6 for the control group; in June the mean score for the combined group was 7.0, for the visual group was 6.3, for the auditory group was 6.9, and for the control group was 4.3. All differences in the reading tests and the tests of learning rate were statistically significant. There were no statistically significant differences between the boys and the girls of the experimental groups. However, in comparing the mean reading test scores of the boys and girls in the control group, the results in November, February, and June were 1.4, 47.0, and 11.7 respectively for the boys and 3.0, 75.4, and 17.7 respectively for the girls. The critical ratios of 11.0, 4.4, and 5.1 were all in the favor of the girls.

For evaluating the effect of lantern slides on auditory and visual discrimination of word elements, Crossley selected two groups approximately equal in auditory and visual discrimination, learning rate, and mental and chronological age. The final data were figured on the basis of 416 children from 10 control and 10
experimental classrooms. The control group used the basal manuals or ideas adapted from them; the experimental group was provided with 50 fifteen-minute lessons incorporating 42 word elements. The lessons consisted of four types of lantern slides (1) illustrations of beginning sounds, (2) illustrations of ending sounds, (3) review slides to be used for language development but containing some beginning and ending sounds, (4) devices for motivation, games, etc. Preliminary testing in October included the Kuhlmann-Anderson Test of Intelligence, Murphy's Unpublished Diagnostic Reading Readiness Test, and parts of Kelly's Test of Auditory Perception of Vowels. Teaching of the 50 lessons began in November. Within three days after each class completed the lessons they were checked again for auditory and visual perception and learning rate. After a lapse of five weeks each child was given an individual oral test of all sounds and blends which had been taught. In May the Gates Primary Reading Test was administered for the purpose of checking the transfer of skills to reading. The control group had a mean gain of 38.7 on the Murphy-Durrell Readiness test and 2.4 on the Kelly test, and the experimental group had a mean gain of 77.1 on the Murphy-Durrell test and 19.4 on the Kelly test; comparing the gain made by each group on the tests a C.R. of 9.1 and 10.0 respectively favored the experimental group. Both groups also made statistically significant gains in visual discrimination - control 8.3 and experimental 9.2, but the difference in mean gain of each group was not statistically significant. In comparing the learning rate scores, the mean gain of 4.0 of the experimental group was significantly (C.R. 6.1) more than the 2.5 of the control group. Although the difference in the mean scores on the Gates Reading Test were not statistically
significant, they were in favor of the experimental group. The results of the individual auditory inventory, control 35.7 and experimental 46.1, showed a significant difference (C.R. 6.7) in favor of the experimental group. Of all the abilities measured in the study, no statistically significant differences were found between the boys and the girls.

Using the data from Crossley's study, Fahy established the order of difficulty of word elements and compared the results with the Biggy and Kelly studies to determine the extent of similarity in difficulty of the individual word elements and the extent to which that difficulty is constant. The results from the 212 children in the control group and the 204 children in the experimental group were also analyzed to evaluate the method of teaching used with the experimental group. The order of difficulty on the test given in November and March showed that initial consonants varied widely, final consonants varied although not as widely as initial, all initial blends except 'sh' varied, two rhymes remained constant and two reversed position, short middle vowels 'a, e, i' were constant while 'o, u' reversed. In comparing the three studies it was found that initial and final consonants and rhymes did not maintain the same position; of initial blends only 'sp' maintained the same position in the three tests. The experimental group had a mean percent of error on initial consonants of 14.9 while the control group had 27.8; the difference was not statistically significant. Mean percent of error on final consonants was 18.6 for the experimental group and 35.9 for the control group; the critical ratio of 3.0 favored the experimental group.

To evaluate recordings for teaching auditory discrimination
of word elements for beginning reading, Bresnahan tested kindergartten children to determine mental age, learning rate, and auditory discrimination. The 180 experimental and 180 control cases chosen showed no statistically significant differences in C.A. or on the test results. The control groups spent an average of 20 minutes daily on the activities of reading readiness as planned by the individual teachers. During the six weeks of the experiment, the experimental group spent 10 minutes daily listening to phonograph records on which initial and final consonants, initial blends, and some rhymes were presented. The lessons provided for exercises in listening, noticing how the sounds were formed, pronouncing, and in finding likenesses and differences; games and songs were used for many exercises. At the end of the experiment the Murphy-Durrell Readiness Test and a test of learning rate were given again. An original test was given also, both to test the sounds which had been taught and to see if there would be a transfer of the skill using words with sounds not taught. The control group made a mean gain of 12.8 and the experimental group had a mean gain of 12.7 as shown by the Murphy-Durrell auditory scores. The learning rate for the control group was 4.2 and for the experimental group was 4.1. The cases which had a zero score in auditory discrimination on the first test were matched according to M.A., C.A., I.Q., sex, and learning rate. There were three matched control and experimental groups: one of 34 boys each, a second of 29 girls each, and the third of 63 boys and girls each. Only in the group of matched control and experimental boys were the differences statistically significant (C.R. 3.4), although in all groups they favored the experimental group. While most of the differences
were not statistically significant, it was concluded that the records were of use because the amount of gain was little different from a 10 minute period with the records as from a 20 minute period of teaching with other techniques.

In order to determine the relationship of pitch to auditory discrimination Lyon compared the scores on the auditory section of the Murphy-Durrell Diagnostic Reading Readiness Test of two groups of first and second grade children with unequal ability to match pitch. This study is reviewed more fully in the section on auditory and visual discrimination.

In a study to determine the relationship of the knowledge of letter names to reading achievement in grade one, Haskell and others constructed a battery of tests which were used on 639 first grade children. This study is reviewed more fully in the section on test construction and evaluation.

Dumbleton and others analyzed the relationship of intelligence, hearing acuity, auditory discrimination, speech sound discrimination, reading ability, and articulation. The first five factors analyzed were measured by the Pintner-Cunningham and Otis Quick Scoring tests, the Massachusetts Pure Tone Screening Test, the auditory section of the Murphy-Durrell Reading Readiness Test, a revision of the Mansur Speech Sound Discrimination Test, and the Detroit Word Recognition Test respectively. Articulation was measured by an original test whose reliability was .83 when determined by the split-halves method. The tests were administered to 425 first grade children. The coefficients of correlation were: .17 between articulation and speech sound discrimination, .10 between reading ability and articulation, .18 between articulation and auditory
discrimination, and .48 between reading ability and auditory discrimination. When the children with poor articulation were considered separately, they were found to be consistently poorer than the whole group in all other aspects, especially in sound discrimination.

Averell and others used the individual articulation test and the individual speech sound discrimination tests used in the Dumbleton study in addition to an original test of auditory discrimination of sound elements. The latter test provided for the teaching of initial and final p, m, f, s, and initial r by meaningful dramatization and visual and auditory clues; a sample test item was next presented, and then the actual test for each sound taught - four pictures in each row of which three were to be marked. The tests were administered to about 200 children between February and May. The coefficients of correlation between the auditory discrimination test and the articulation test was \( \cdot 000 \), between the speech sound discrimination test and the auditory discrimination test was \( \cdot 01 \), and between the articulation test and the speech sound discrimination test was \( \cdot 02 \).

Sex Differences in Reading Readiness.

To determine the type and scope of sex differences in reading readiness, Carroll analyzed the results of over 500 children from the Stone and Grover test, of 267 children from the Monroe Reading Abilities Test, of about 325 children from the non-optimal sections of the Gates New Work-Play Standardized Reading Readiness Test, and of 422 children from the Dearborn-Cushman test. Although none of the differences in Brown's study were statistically significant,
the mean scores of the Gates Primary Reading Test given to 414 of
the same children in the study were 3.2 for the girls and 1.7 for
the boys, a C.R. of 10.5 in favor of the girls. The differences
on the Monroe and Dearborn-Cushman tests were not statistically
significant. In the non-optional sections of the Gates test only
the Word Card Visual Perception test showed any significant
difference, C.R. 7.4 in favor of the girls.

DeMichelo analyzed the results of the Murphy-Durrell Diagnostic
Reading Readiness Test given to 2,641 children at the
beginning of the first grade. In auditory discrimination there
was a mean difference of 4.35 between the boys and the girls, a
C.R. of 4.2. There was a difference of 1.98 between the mean of
the boys and the girls in visual discrimination, a C.R. of 4.4.
There was no correlation found between C.A. and auditory test
scores nor between C.A. and visual test scores. For each six
months of M.A. there was a positive correlation with auditory
and visual test scores.

Many studies not primarily concerned with sex differences in
reading readiness have included such information as secondary
findings; such data are reported with the findings of any studies
so analyzed.

Rate of Learning in Grade One.

Lewis compared the rate of learning of words presented by
word analysis method with those presented by word meaning method.
The population in the study consisted of 37 first and second grade
children. The study is reviewed more fully in the section on
word meaning and word recognition.
To determine the effects of word study and word enrichment techniques on the rate of learning Lenk\(^2\) chose 24 words from the International Kindergarten Union Vocabulary List. The words were divided into three groups of eight and taught to 132 children in six first grades, every two grades receiving the same third of the words. Four words were taught by word study and four by word enrichment in one of the classes. In the other class using the same words, the procedure of presentation was reversed. One hour after teaching, each child was tested individually to determine his learning rate. The difference between the word study and the word enrichment methods was not statistically significant, although it favored the word study method. When scores on the Detroit Word Recognition Test were compared with learning rate the correlation was found to be .27.

Callahan\(^5\) constructed three lessons each containing five abstract and five colorful words. The lessons were given to 68 pupils who were tested individually one hour after each lesson. At the end of another two hours, they were re-tested and the words retained considered to be the rate of learning. The mean number of colorful words remembered was 9.9 and of abstract words was 7.5, a C.R. of 4.2.

Similarly Cerica\(^7\) selected 30 words which she built into three lessons, using five abstract and five colorful words in each lesson. The classroom teachers presented the lessons, each with the various groups of her own class, to a total population of 136 pupils. One hour after a lesson, each child was tested individually with flash cards to see how many words he knew. His learning rate was considered to be the number of words he could recall
on a re-test at the end of a second hour. The differences between the rate of learning of colorful (11.5) and abstract words (8.9) was significantly (C.R. 6.6) in favor of the colorful words. There was no significant difference between the learning rates of the boys and the girls.

In the study by Boyle, lessons containing five colorful and five abstract words were given to 112 children in small groups. One, two, and five and one-half hours later each child was individually tested using flash cards to see how many words he retained. The number of words remembered at the third testing was considered to be his learning rate. The mean learning rate for the group was 10.7 colorful words and 6.5 abstract words, a C.R. of 7.5. Comparisons of the learning rate of boys and girls showed no statistically significant differences. The relationship of learning rate and reading achievement as indicated by the Detroit Word Recognition Test showed a correlation of .76 with a probable error of .04.

Word Perception.

Donnelly tested 365 first grade children for word recognition at the end of the third, sixth, and ninth months of school. Cards with words printed in lower case, large print were made for testing. For the first test, a random sampling of 75 of the first 500 words in the Gates vocabulary list was used. The second test included the same words plus 50 more difficult words from the second 500 words in the Gates list. In the third test the same words used in the second test were repeated plus 25 new and more difficult words. It was not possible to determine the decile position of a child in the test of the sixth month from his decile position in the test of
the third month; correlation between the two was .78. With some exceptions the decile position of the ninth month could generally be predicted by the data from the sixth; correlation between the two was .91. Pupils with a low score in the third month tended to make a comparatively low score in the ninth month; correlation of the two was .57.

To discover word perception errors and to determine the persistence of those errors, Clarke used the 78 vocabulary words from the Row, Peterson pre-primers to build an original story. As the 62 children used in the study finished reading the pre-primers, they read the original story individually to the teacher who recorded the errors. In one group 57 words persisted in error; in a second group finishing the pre-primers two months later, 60 words persisted in error. Proper names were found easiest and abstract words hardest for the children to learn. Slow children made the same types of errors as bright children but made more of them. The same words were difficult or easy for both slow and bright children.

Robertson and others in a similar study used the vocabulary from the Scott Foresman basic first and second readers in building six original stories for testing. As each of the 392 children in the study finished pre-determined sections of reading, they were individually tested by the classroom teacher who recorded their errors. After the first five sections and tests had been completed, a re-test containing all the vocabulary words was administered. The three most common types of error in the order of greatest frequency were: (1) words not known by the children, (2) words totally mis-pronounced, and (3) substitutions of words with similar forms and
ideas. They found also that persistency of initial errors and frequency of types of errors were very low as indicated by the re-test.

The Effect of Kindergarten Training, Individual Instruction, Certain Readiness Skills, and First Grade Absence on Reading Achievement.

To determine the effect of auditory and visual discrimination and learning rate on reading achievement, McFarland used the Murphy-Durrell Reading Readiness Test. Ninety-four children with a mean C.A. of 76.9 months and a mean M.A. of 84.3 months were tested. An individual oral reading test including the vocabulary from the pre-primers and primers of the Scott Foresman series was constructed and administered in February. Learning rate had a .67 correlation with reading achievement, auditory discrimination had a .65 correlation, and visual discrimination had a .55 correlation. The only area which showed statistically significant difference between the boys and the girls was visual discrimination in which the girls were superior by 4.9 points.

Saunders compared reading achievement with mental age auditory and visual discrimination, and motor skills. In September 105 first grade children were given the Gates Reading Readiness Test, the Fintner-Cunningham Test of Mental Ability, Murphy's Unpublished Test of Visual and Auditory Discrimination, and an original test of motor skills. In February the Detroit Word Recognition Test was given. All the factors showed low positive correlations ranging in the following order: mental age .55, auditory discrimination .42, visual discrimination .35, readiness .35, and motor skills .03. Sex differences showed correlations of mental
age with reading achievement to be slightly higher for the boys, while correlations of visual and auditory discrimination and reading readiness were higher for the girls.

For evaluating individual instruction in beginning reading, Moore used 75 first grade children with a mean C.A. of 6-4 and a mean M.A. of 7-8 as a control group, and 57 children with a mean C.A. of 6-5 and a mean M.A. of 7-9 as an experimental group. The control group followed the usual group reading procedures; the experimental group met for preparatory work and word practice at first, but the book reading was done individually. They were required to read the three pre-primers of one reading series after which they were placed on a free reading program. Only for basic training in word analysis or when some difficulties were found to be fairly common did they meet in groups or in the class as a whole. Silent reading was done at their desks, while oral reading was done individually either to the teacher or to another pupil. The differences in mean score on the Gates Primary Reading Test given in April were not significant, although they did favor the experimental group. The mean number of pre-primers read was significantly (C.R. 4.5) in favor of the control group - control 4.6, experimental 1.7. There were no statistically significant differences in the number of primers read. The mean number of first readers and above was significantly (C.R. 3.6) in favor of the experimental group - control 1.6, experimental 2.9.

During September, Rypinski administered the Pintner-Cunningham General Ability Test and the Metropolitan Readiness Test to 247 first grade children in groups of eight or ten. The 130 children who had had kindergarten training were considered
the experimental group, while the 117 who had not were considered the control group. At the end of the year the Metropolitan Achievement Test was given. In comparing reading readiness, the mean score for the kindergarten group was 46.8, and for the non-kindergarten group was 39.5, a C.R. of 7.1; for kindergarten boys 46.0 and for non-kindergarten boys 39.9, a C.R. of 4.7; for kindergarten girls 47.5 and for non-kindergarten girls 40.0, a C.R. of 5.2; no significant differences were noted between the scores of kindergarten boys and girls or between non-kindergarten boys and girls. There were no significant differences between any of the groups in the mean scores of reading achievement.

In a study by Farrar, 50 first grade pupils who had had a year of a planned language enrichment program in Kindergarten were selected as an experimental group, while 50 children who had had no previous specific training were chosen for the control group. The mean M.A. for the experimental group was 92.6 and for the control group was 70.2. The difference of the means on the Metropolitan Readiness Test given in October was 13.1, a C.R. of 6.3 in favor of the experimental group. There was no significant difference on the Metropolitan Achievement Test given in May.

From the records of 162 children attending grades one through the beginning of six in one school system, Hoik obtained the number of days each pupil was absent in grade one and their scores from the Metropolitan Achievement Test given at the beginning of grades four, five, and six. The cases were arranged in chronological order according to the number of days absent and were divided into six groups in order to make comparisons between high absence and low absence groups. The mean C.A. of all six groups
was between 9.3 and 9.7. The mean M.A. of all groups was between 9.2 and 9.5. The achievement scores of each group were then compared at the fourth, fifth, and sixth grade levels. At that point in the study, 27 low absence cases were matched within three months mental age of 27 high absence cases. None of the data in the group comparisons nor in the comparisons of the 27 pairs was statistically significant.

Test Analysis, Construction, and Evaluation.

Smart constructed a test consisting of six parts: (1) visual perception, (2) motor coordination, (3) auditory perception, (4) vocabulary index, (5) auditory-visual perception, and (6) comprehension. The International Kindergarten Union and Durrell Intermediate Vocabulary lists were used in choosing words or parts of words. Sections of the Durrell-Sullivan Reading Analysis and of the Durrell Analysis of Reading Difficulty were also used in constructing the test. Correlation of the various parts of the test with the Detroit Word Recognition Test showed: visual perception .68 $\pm$.03, auditory perception .60 $\pm$.04, auditory-visual perception .55 $\pm$.04, vocabulary .46 $\pm$.05, comprehension .18 $\pm$.06. The correlation of all the tests combined was .69 $\pm$.03.

To determine the most important factors to measure for indicating reading readiness, and to construct such a test, McCarthy examined the following tests: Lee-Clark Reading Readiness, Metropolitan Reading Readiness, Monroe Reading Aptitude, Van Wagenen Reading Readiness, and Gates Reading Readiness. The test which was built consisted of twelve sub-tests: (1) picture matching, (2) picture-card matching, (3) letter-card matching of large
capitals, (4) letter-card matching of small capitals, (5) letter-card matching of lower case letters, (6) word matching, (7) word-card matching of words written with capitals, (8) word-card matching of words written with lower case letters, (9) rhyming test, (10) initial sounds using pictures, (11) motor coordination following dots in an irregular line, and (12) motor coordination following dots in a straight line. The test was given to 387 kindergarten children - some four years to four years and five months, and some five years and six months to eight years. The sub-tests had the same order of difficulty in the three age groups and discriminated well between them. There were no significant differences between the boys and the girls on any of the sub-tests.

Following the method of testing the middle sounds in words as Monroe had done in her readiness test, of testing rhymes as Gates had done in his readiness test, and of testing beginning and final consonants and beginning blends as Murphy had done in her unpublished test, Tufts constructed a four part test using the three methods and including in addition a test of beginning and final consonants and beginning blends using the written words rather than pictures. The test was given to 201 children. The mean score for the group was 69.6, for the 102 boys was 69.0, and for the girls was 71.0. An item analysis showed that final and initial consonants and beginning blends were of more value than middle sounds and rhymes. The correlation between auditory discrimination and reading ability as measured by the Detroit Word Recognition Test was .47.

Jellison analyzed the following tests: American School Reading Readiness Test, Classification Test for Beginners in
Reading, Diagnostic Group Reading Readiness Test, Gates Reading Readiness Test, Lee-Clark Reading Readiness Test, Metropolitan Readiness Test, New York Reading Readiness Inventory, Reading Aptitude Tests, Reading Readiness Test, Sangren Information Tests for Young Children, Stevens Reading Readiness Test, and Van Alstyne Picture Vocabulary Test for Pre-School Children. In comparing the tests it was found that the number of sub-tests varied from seventeen to one. The area with the greatest number of items was visual perception (541 items); the area of laterality had the fewest items (13). Included was such information as: purpose of the tests, when and how to use them, materials needed for giving the tests, directions for administering them, description of types of items, validity, reliability, directions for scoring, standardization, and whether they provided interpretations and recommendations.

In a study by Farrington, 134 children were given the Monroe Reading Aptitude Test during the spring of the kindergarten year, the Science Research Associates Mental Abilities Test during the fall of the first grade year, and the Metropolitan Reading Achievement Test during the spring of that same year. The correlation of the aptitude and achievement test scores was .475. After the I.Q. scores had been divided into three groups (retarded 70-89, average 90-109, and superior 110 and above) they were compared with the achievement test scores and the correlations found to be .353 for the retarded group, .335 for the average group, and .345 for the superior group.

A six section group auditory test of word analysis was built by Maskell using the order of difficulty established by Bigsy and the order of presentation used by Murphy. The Lee-Clark
Reading Readiness Test had been given in September. In February the original test was given to the 124 children in five first grade classrooms. The children in each class were ranked highest, middle, and lowest according to teachers' marks of their school achievement. The groups from the various schools were combined making a total of 52 high, 31 middle, and 41 low. About a week later the Detroit Word Recognition Test was given. The mean scores for each group were: Lee-Clark Reading Readiness Test - high 54.7, middle 49.3, low 38.2; Group Auditory Test - high 73.8, middle 59.8, low 47.2; Detroit Word Recognition Test - high 21.4, middle 14.7, low 6.3. In all three tests the differences between high and middle, middle and low, and low and high were statistically significant. The coefficient of correlation between the Group Auditory Test and the Detroit Word Recognition Test was .65.22

Hurvitz and others attempted to construct a test which would better distribute the zero scores obtained in the kindergarten year on existing readiness tests. Five forms of teaching were used and tested. Form I was included in the Averell study; Forms II-V consisted of four steps: step one (a dramatization of the sounds to be presented) and step four (the presentation of the sample test item prior to testing) were alike in all the forms. Step two and three varied as follows: Form II - teacher pronounced words beginning or ending with the sound to be tested and the children tried to identify three similar words from a list of four words; Form III - teacher showed pictures pronouncing the names of the words illustrated which began or ended with the sound to be tested while the children tried to identify the correct pictures from a similar set shown to them; Form IV - similar to the second form
except that each time the children repeated the pronunciation given by the teacher; Form V - similar to the third form except that each time the children repeated the words pronounced by the teacher. Each form was administered to 55 kindergarten children in groups of 10 or less. Form II containing 128 items showed a mean score of 42.2, a standard deviation of 23.8, and 43 significant items. Form III containing 128 items showed a mean score of 17.9, a standard deviation of 20.5, and 40 significant items. Form IV containing 112 items showed a mean score of 45.9, a standard deviation of 24.6, and 21 significant items. Form V containing 144 items showed a mean score of 85.2, a standard deviation of 28.5, and 18 significant items. Because of the small number of significant items, it was concluded that the test could not be used as a measure of auditory discrimination, but that the test material appeared useful as a teaching aid in introducing new sounds.
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20. Heft, Martha and others. A Study to Discover the Experiences and Backgrounds Necessary for Success in First Grade Reading. Ed.M. 1952. 149 p.


**Theses Reviewed Elsewhere**


Hay, Cora Gertrude. A Study of Vocabulary Difficulties in Pre-

Purpose: to discover the child's reactions to the vocabulary in
children's literature commonly told or read to him, and to
determine the value of instruction in it.

Materials: Twenty-five of the most commonly read stories, rhymes
and fables were selected. One word was chosen from each short
rhyme and four words selected from each story and fable, making
a total list of 100 words.

Procedure: Sixty-five children were tested individually and their
exact responses recorded. A complete sentence was read first,
to determine whether the meaning of the word was intensified
through its position in the story. A second time the sentence
was shortened to a phrase with the special word meaning in its
original place. The third time the word alone was repeated and
the response of the child recorded. The population was then
divided into control and experimental groups. The thirty-one
children in the control group had a mean C.A. of 5-9 and a
mean M.A. of 6-5. The thirty-two children in the experimental
group had a mean C.A. of 5-11 and a mean M.A. of 6-3. Stories
and words were arranged according to the month in which they
were to be read. No suggestions were offered to teachers of
the control group, but the teachers of the experimental group
were given a great deal of direction for a specific program
of study. The suggested program allowed for natural and
individual interpretation through dramatization, drawing, playing, etc. Study averaged 15 minutes each day, four days a week for four months. The groups were retested in order to estimate value of the study.

Findings: The mean scores on the pre-test were 38.6 for the control group and 29.9 for the experimental group. On the re-test the mean scores were 42.8 for the control group and 56.7 for the experimental group. In neither test were the differences statistically significant. When considering the mean gain made by each group, however, the difference was significantly in favor of the experimental group (C.R. 5.6).

Purpose: to investigate the vocabulary requirements on the kindergarten level for word meaning comprehension in grade one reading.

Materials: Sixty-three textbooks including pre-primers, primers, and first readers published from 1931 to 1941 were analyzed. Thirty-five of these were basal series reading books, 26 were supplementary books including: arithmetic, social studies, safety, health, science, and regular readers.

Procedure: The population included 96 children, 32 from each of three kindergartens: group I was from a rural community with a minimum age requirement of 5.0; groups II and III, both from suburban communities, had minimum age requirements of 4-10 and 4-5 respectively. The books were examined for unusual experience words which would require a background of information for understanding by the children. From a list of 652 such words classified in 18 experience areas, 253 words were chosen as representative and suitable for picture tests which were then constructed. Groups of four boys or four girls at a time were asked to point on their paper to the pictures of the words dictated. The responses were noted by the tester.
Findings: The range of percents of the number of words known by each group was: Group I, 96.2% in Transportation to 48.6% in Wild Animals (average 77.0%); Group II, 87.0% in Transportation to 31.6% in Insects (average 64.4%); Group III, 79.9% in Night to 25.9% in Insects (average 50.2%). The higher the minimum age requirements, the larger the word meaning vocabulary. There were slightly higher percentages in favor of boys over girls in each of the three groups; the total average percent of all three groups was 65.5 for the boys and 62.3 for the girls. In the total average percentages of all three groups, there were three fields with percentages less than 50: Wild Animals 43.2%, Insects 40.0%, Nature, section three, 40.0%. There were three fields with total average percentage 90 or above: Night 80.4%, Community Workers 80.7%, and Transportation 87.3%. It was therefore concluded that all fields needed further enrichment, and that the lower the minimum age requirements, the more enrichment was needed.
Thompson, Helen I. *A Study of Vocabulary Necessary for Reading in a First Grade.* Ed.M. 1945. 98 p.

Purpose: to decide the experiences essential for a group in preparation for a successful formal reading program and to develop a test to reveal any vocabulary needs for such preparation.

Materials: Thirty-one basal readers from ten publishing houses including fifteen pre-primers, nine primers, and seven first readers were examined for words that required a background of experience to be understood. The Pintner-Cunningham Intelligence Test Form A was administered.

Procedure: Each word was noted, tabulated for frequency, and classified under one of 22 experience fields. The words were then reviewed and only those which could be illustrated and would provide a sampling of the child's experience background were selected - a total of 326 words which were built into a picture test. Forty-five children were then tested individually in approximately 25 minute periods. The child was to point to the pictures of the words the examiner pronounced. The mean C.A. of the 25 boys was 4-11 and of the 20 girls was 5-0. The mean M.A. of the boys was 4-11 and of the girls was 4-10.

Findings: The words were listed in the order of difficulty. Forty-eight words were known by 90% or more of the children; 137 words were known by 50% or less of the children. Sugar
oane and nightingale were not known by anyone. There were no experience fields with complete knowledge nor any with complete lack of knowledge. The two fields in which the group knew 80% or more of the words were Toys and Play 83.7% and City 81.4%. There were 10 fields in which the group knew 50% or less of the words. The boys had greater vocabulary knowledge in the field of Toys and Play 82.8%, the girls in City 83.6%. The boys knew the fewest words in the field of Transportation 35.2%, the girls in Water Animals 23.5%.

**Purpose**: to discover the meaning kindergarten children have for certain words in first grade reading books.

**Materials**: Pintner-Cunningham Primary Test, Form A was used. Three pre-primers, six primers, and fourteen first readers from eleven different publishing houses were used to derive the vocabulary.

**Procedure**: After checking the books, the 296 words which were considered possible causes of confusion were classified into 10 experience fields. From this list were chosen 100 words which were easy to illustrate and which might be considered most confusing to the children. From these words an individual multiple choice test using pictures was developed. A total of 244 illustrations were placed three or four in a row on individual cards. Thirty boys and thirty girls were used. The mean C.A. of the group was 5-3; the mean M.A. was 5-3. The children were tested before school and during lunch periods in two ten-minute sittings. When the teacher pronounced a word the child was to point to its picture. Incorrect responses were recorded.

**Findings**: From a possible score of 100, the highest score was 94 and the lowest 34 with a mean of 65.6, S.D. 13.9. The data were then analyzed to find the relative order of difficulty.
Airplane was the only word known by all. The percent of words correct in each experience field were also averaged. Transportation with 74.5% was most familiar, while nature with 52.1% was least familiar. There was no field in which word knowledge of the children could be called adequate. From the 100 words there were only two which had significant difference in favor of the girls. Otherwise there was no essential difference between comprehension of boys and girls.

Purpose: to discover the extent of agreement between the speaking vocabulary of kindergarten children and the vocabulary of stories read to them.

Materials: Thirty commonly read stories were chosen since they appeared in at least two of the three children's literature anthologies examined. Three vocabulary lists were used for comparison: (1) International Kindergarten Union list containing 2,596 words with a frequency of seven or more was used because it was a kindergarten list from a representative population (2) Hodgkins list of 2,792 words was used because it represented the vocabulary of nursery school children with economic backgrounds offering them many advantages (3) Rinsland's list of 14,571 words with a frequency of three or more in any one grade was used because it represented the vocabulary of children in grades I - VIII.

Procedure: Each story was word counted and the words listed alphabetically, a mark being placed beside each word every time it appeared. The headings of the final record of each story are: (Column 1) no heading - contains words in alphabetical order, (Column 2) F - represents frequency showing number of times each word was used, (Column 3) Rinsland, (Column 4) I.K.U., (Column 5) Hodgkins. Under
headings 3, 4, and 5 a star was placed if the word in column one was also on any or all of the respective word lists.

Findings: There was a total of 3,061 different words. Since 367 or 12% of these words did not appear on any of the three lists used for comparison, and since another 1,198 or 39% of these words appeared only on the Rinsland list (grades 1-8), it would appear that some of the stories need to be rewritten, or else there should be some vocabulary enrichment before the stories are read to kindergarten children.

**Purpose:** to discover the types of experiences necessary for the understanding of the Scott Foresman basic readers for grade one.

**Materials:** For tabulating experiences the three pre-primers, the primer and the first reader of the Scott Foresman Series was used. Thurstone’s Primary Mental Abilities Test was given in October to determine mental age.

**Procedure:** A total of 354 first grade children with a mean C.A. of 73 months and a mean M.A. of 73 months, including 180 boys and 174 girls were given a background experience inventory test. Six general areas were used in the test: (1) excursions (2) transportation (3) recreation (4) home and community (5) construction (6) science. A total of 41 experiences were included in the six areas.

**Findings:** From the number of experiences possible in each area the most known were in the field of home and community; the fewest were in the field of science. The boys had had 4,068 experiences, the girls only 3,840. The girls had more experiences than the boys in only one area - recreation. The children who had had a year of kindergarten had slightly more experiences than those not having had it. A mental age equal to or higher than C.A. did not necessarily affect the number of background experiences.
Dunn, Margaret Virginia. *Word Meanings in the First Grade.*

Purpose: to analyze some comprehension problems of a group of first grade children.

Materials: Seventy-three homonyms, some with the same spelling and others with different spelling, were taken from the Scott Foresman and the Silver Burdett first year series and from two music books: *The American Singer Book I,* and *Sentence Songs for Little Singers.*

Procedure: Individual oral testing was used on 50 children. The teacher pronounced the word, and the child gave as many meanings as he knew for the word; answers were recorded.

Findings: Fifty-one words had incorrect responses, some because of poor auditory discrimination e.g. responses for "find" were given to "fine". Ten words had complete understanding. Nine words had no response. Twenty-six words necessary for understanding first grade work were understood by 50% or less of the children, while 14 words were understood better in the form not necessary for understanding first grade reading.
Purpose: to measure the understandings of first grade children relative to a selected vocabulary of Ginn Basic Readers.

Materials: Ginn Basic Readers for first grade including three pre-primers, one primer, and a first reader.

Procedure: The vocabulary of the test was alphabetized, frequency in readers listed, and frequency of appearance in International Kindergarten Union List noted. To select the words for a picture type test all proper names and pronouns, some adjectives, verbs, and adverbs, and words appearing more than 200 times on the I.K.U. List, and less than five times in the readers, were omitted. From the remaining words 100 were chosen as follows: words in the readers but not on the I.K.U. List, words with a frequency of less than 200 on the I.K.U. List and words with a frequency of five or more in the readers. The picture test was made using these words; twenty words were pictured on each page, and a sixth page of twenty pictured words was used as a sample page on which the examiner demonstrated to the children how the test was to work. For purposes of analysis the words were classified into six experience areas. In February the test was given to 167 first grade children: 93 boys, 74 girls. The mean C.A. of the boys was 6-10, and of the girls was 6-8.

Findings: The mean score for the entire group was 82.8, for the
girls 84.3, and for the boys 81.5. The percent of the group with correct responses in each area was: People 95.6%, Transportation 94.3%, Places 91.2%, Science 83.5%, Home and Community 79.6%, Play 78.7%. Forty-two words were known by 90 or more percent and four words by less than 50 percent. No word was known by all of the children, and no word was known by less than 40 percent.
Hefler, Martha, and Waters, Leola. *A Study to Discover the Experiences and Backgrounds Necessary for Success in First Grade Reading.*

Purpose: as stated in title, and to compare the experience backgrounds of rural and city children.

Materials: The words Smith and Spainhour tabulated in their study were used in this study to build word experience tests.

Procedure: From those lists 334 nouns, appearing on the Gates word list and appearing three times or more in basal texts and five times or more in supplementary readers, were divided into 24 interest fields: The nouns were illustrated, often several being put together in one scene. The tests were then administered to 51 children from rural areas and 43 children from city areas. The children were tested in groups of not more than 5; as the nouns were pronounced the child was to point to the correct picture on his paper while the teacher recorded the response on a chart.

Findings: The word difficulties in each interest area were analyzed and recorded separately for rural and city children. The order of difficulty of all words tested for city and rural children was included in the study. Percentages of correct responses for each area as a whole were presented, comparing rural and city girls, rural and city boys, and total rural and city population. Ninety-eight words were known by 100 percent of the city children and only 45 words were known by 100 percent
of the rural children. In the city group 28 words were known by 50 percent or less, while in the rural group 48 words were known by 50 percent or less. It was felt that the city children got better scores because they had the test later in the year and because they had all attended kindergarten while the rural children had not.

Purpose: to discover the basic and common experiences in the background of children which are necessary for successful reading.

Materials: Paul Witty's list of Favorite Books was used in selecting 50 supplementary readers. The vocabulary chosen for the test was compared with the words on the Gates Primary Reading Vocabulary List.

Procedure: The first 50 books from the Paul Witty list of Favorite Books were analyzed for words requiring experience to comprehend; a frequency tabulation was made and the words compared with the Gates Primary Reading Vocabulary List. Tables showing the frequency and correlation with the Gates list were built and sent to Martha Hefler and Leola Waters who, from that list and a list of vocabulary from readers, chose 334 nouns to build an experience test consisting entirely of pictures divided into 24 interest fields. The tests were administered by Smith to 72 first graders testing three children at a time.

Findings: There was complete knowledge in only one category - Parties. No area had complete failure. The words concerning Town and Country, and People were known by fewer than 50 percent of the children.

Purpose: an attempt to determine the specific experiences needed by children in the first grade for beginning reading.

Materials: Fifty basal readers from eleven publishing houses including pre-primers, primers, and first readers - level one were used.

Procedure: The books were examined for words which a first grade pupil might not have experienced but should know. A frequency tabulation of such words was made and then checked against the Gates list. From Spainhour's list and Smith's 36/36 list of vocabulary from supplementary readers, 334 nouns were chosen and divided into 26 experience fields for use in a picture test by Hepler and Waters. Spainhour administered the test in February to 30 first grade pupils of average and below average abilities who had had little kindergarten training. The children were tested in groups of five. As the teacher called the word each child was to point to the picture for that word on his own mimeographed sheet. Responses were recorded.

Findings: The field of Fruits and Vegetables was most familiar to the group, 99.6% of the children knew the words, while Seasons was the least familiar, 40.0% of the group knew the words. Ninety percent or more of the group knew the words in the fields of Toys,
Fruits and Vegetables, Miscellaneous, Farm Animals, Community Helper, and Home Utensils; 50% or less of the group knew the words in the fields of Flowers, Seasons, and Nature. Valley was the only word not known by any in the group. In only one field (flowers) was there much difference between the number of girls and the number of boys knowing the words; 34.8% more girls than boys knew the words in the area of flowers.
Purpose: to evaluate the effect of ear training exercises on beginning reading.

Materials: Detroit Advanced First Grade Intelligence Test. Detroit Word Recognition Test Form A. Monroe Reading Aptitude Test. Original tests of auditory and visual discrimination were built.

Procedure: Fifty-five children in an experimental group of 35 first and 20 second grade children, and fifty children in a control group of 30 first and 20 second grade children were given preliminary tests. For thirty days the experimental group spent ten minutes of the reading period on exercises to improve their auditory discrimination by specific teaching of initial and final consonants and beginning blends. At the close of the experiment, learning rate and auditory and visual discrimination were tested again.

Findings: The mean C.A. of the experimental group was 7.1, the mean M.A. was 7.3. The mean C.A. of the control group was 6.9, the mean M.A. was 7.3. The preliminary test of learning rate showed a mean score of 2.5 for the experimental group and 1.7 for the control group. The mean score on the final test of learning rate was 5.2 for the experimental group and 2.7 for the control group. When the mean gain of each group was compared, the C.R. of 4.1 was in favor of the experimental
group. Differences in mean score on the initial group auditory test were in favor, though not significantly, of the experimental. Differences in mean score on the final group auditory test were even less, probably due to the fact that through a misunderstanding on the part of the teacher the control group was given practice on the test. The group visual tests showed mean scores on both the preliminary and final forms in favor of the experimental group though not significantly so. Scores on an individual auditory test given at the end of the six weeks were 27.1 for the experimental group and 10.7 for the control group, a C.R. of 13.1. The Detroit Word Recognition Test results showed a mean score of 11.5 for the experimental group and 7.6 for the control group; the difference was not statistically significant.

Purpose: to evaluate the specific training as it affects learning rate, reading scores, visual perception of words, and auditory discrimination between likenesses and differences in words.

Materials: The International Kindergarten Union Vocabulary List and the Gates Primary Word List. The Pintner-Cunningham Primary Intelligence Test and the Detroit First Grade Intelligence Test. Lee-Clark Reading Readiness Test. An original test of auditory and visual discrimination was built.

Procedure: In 13 first grades an initial battery of tests (the Detroit First Grade Intelligence Test Form B, the Pintner-Cunningham Primary Intelligence Test Form A, the group tests of auditory and visual discrimination, the Lee-Clark Reading Readiness Test, and a test of learning rate) was given. The schools were then combined, and four groups with 75 children in each were formed. The groups matched exactly on learning rate scores, within three months on M.A., and as closely as possible on all other tests results. Three of the groups were provided with 10 minute lessons for thirty consecutive days; the lessons for one group were to develop auditory discrimination, for a second group to develop visual discrimination, and for a third to develop both auditory and visual discrimination. The control group was given no specific
training. At the close of the experiment in November the Detroit Word Recognition Test Form A and a second test of learning rate were given. In February an individual oral inventory reading test was given. The test consisted of two paragraphs containing the words that were common to the reading systems taught in the schools included in the study, and a list of 25 words which included several words that had not been taught. In June Form B of the Detroit Word Recognition Test and a third test of learning rate were given.

Findings: The mean scores on the reading tests for each group were as follows: on the Detroit Word Recognition Test in November - combined group 9.1, visual group 7.2, auditory group 4.2, control group 2.5; on the Oral Reading Inventory Test in February - combined group 92.4, visual group 85.0, auditory group 75.7, control group 59.4; on the Detroit Word Recognition Test in June - combined group 21.5, visual group 19.1, auditory group 20.0, control group 14.5. In September the learning rates score was 1.9 in all four groups; the November scores were 4.5 for the combined group, 4.5 for the visual group, 4.3 for the auditory group, and 2.6 for the control group; in June the mean scores for the combined group was 7.0, for the visual group was 6.3, for the auditory group was 6.9, and for the control group was 4.3. All differences in the reading tests and the tests of learning rate were statistically significant. There were no statistically significant differences between the boys and the girls of the experimental groups. However, in comparing the mean reading test scores of the boys and girls in the
control group, the results in November, February, and June were 1.4, 47.0, and 11.7 respectively for the boys and 3.0, 75.2, and 17.7 respectively for the girls. The critical ratios of 11.0, 4.4, and 5.1 were in favor of the girls.

Purpose: as stated in title and to determine the practical value in the classroom in terms of increased learning of the child.

Materials: Word elements were selected from an analysis of the pre-primers of 5 basal reading systems and its comparison with the International Kindergarten Union Vocabulary List. Four types of lantern slides were prepared: (1) illustrations of beginning sounds (2) illustrations of ending sounds (3) review slides to be used for language development but containing certain beginning and ending sounds (4) devices for motivation, games, etc. The Murphy-Durrell Diagnostic Reading Readiness Test and part of Kelly’s Test of Auditory Perception of Vowels were used to test auditory and visual perception and learning rate. Kuhlmann-Anderson Group Test of Intelligence for Grade One was used in November. Gates Primary Reading Test was used in late May.

Procedure: From several schools 605 first grade children were tested; the schools were then combined and two groups of approximate equality in auditory and visual discrimination, learning rate, and mental and chronological age were formed. The groups consisted of twenty classrooms, 10 control and 10 experimental; the grouping in all was heterogeneous. The final statistical data were figured on the basis of 416 children.
The teaching material had been arranged so as to require fifty fifteen-minute lessons incorporating forty-two word elements. Preliminary testing (the Murphy-Durrell, Kelly, and Kuhlmann-Anderson tests) began in October. Teaching of the 50 lessons began in November. The teachers working with the experimental group used only the material in the study for instruction in auditory and visual discrimination, while those working with the control groups adapted instructions suggested in the basal manuals. Because of inclement weather and childhood disease epidemics, the fifty lessons were completed at various times by different teachers. Within three days after each class completed the lessons they were checked again for auditory and visual perception and learning rate. After a lapse of five weeks each child was given an individual oral test of all the sounds and blends which had been taught. In May the Gates Primary Reading Test was administered to the entire population and used in the study for the purpose of checking the transfer of skills to reading.

Findings: Both groups made statistically significant gains in auditory discrimination - the control group had a mean gain of 38.7 on the Murphy-Durrell Readiness test and 2.4 on the Kelly test, the experimental group had a mean gain of 77.1 on the Murphy-Durrell test and 19.4 on the Kelly test; comparing the gain made by each group on the tests, a C.R. of 9.1 and 10.0 respectively favored the experimental group. Both groups also made statistically significant gains in visual discrimination - control 8.3 and experimental 9.2, but the difference in mean
gain of each group was not statistically significant. In comparing the learning rate scores, the mean gain of 4.0 of the experimental group was significantly (C.R. 6.1) more than the 2.5 of the control group. The differences in the mean scores on the Gates Reading Test were not statistically significant but were all in the favor of the experimental group. The results of the individual auditory inventory, control 35.7 and experimental 46.1, showed a significant difference (C.R. 6.7) in favor of the experimental group. Of all the abilities measured in the study, no statistically significant differences were found between the boys and the girls.

Purpose: to determine whether the order of difficulty of word elements remains constant in different situations and to evaluate the effect of a certain teaching method on the comparative ease of learning word elements.

Materials: B. Alice Crossley's study was used for purposes of comparison.

Procedure: From the data in Crossley's study, the scores on the November test were used to establish an order of difficulty and the results compared with the Biggy and the Kelly studies to determine the extent of similarity in difficulty of the individual word elements and the extent to which that difficulty is constant. The results from the 212 children in the control group and the 204 children in the experimental group were also analyzed to evaluate the method of teaching used with the experimental group.

Findings: The order of difficulty on the tests given in November and March showed that: initial consonants varied widely, final consonants varied although not as widely as initial, all initial blends except 'sh' varied (none more widely than two places), two rhymes remained constant and two reversed position, short middle vowels remained in the same order, the long middle vowels a, e, i, were constant while o, u, reversed. In comparing
the three studies it was found that initial and final consonants and rhymes did not maintain the same position; of initial blends only 'sp' maintained the same position in the three tests. In the comparison of the Kelly and Fahy studies, short middle vowels a, o, u, maintained the same position in both tests while i, e, reversed; long middle vowels a, e, maintained the same position while u, o, varied only one place. The experimental group had a mean percent of error on initial consonants of 14.9 while the control group had 27.9; the difference was not statistically significant. Mean percent of error on final consonants was 18.6 for the experimental group and 35.9 for the control group; the critical ratio of 3.0 favored the experimental group. On all word elements tested the experimental group showed far lower percentage of error than did the control group.

Purpose: to evaluate the effectiveness of recordings as a self-teaching device of auditory discrimination in kindergarten.

Materials: Murphy-Durrell Diagnostic Reading Readiness Test, California Test of Mental Maturity Primary Series. An original test of auditory discrimination was constructed.

Procedure: Kindergarten children were tested in February to determine mental age, auditory discrimination skill and learning rate. From all those tested, 360 cases - 180 experimental and 180 control - were used. None of the results on the tests nor in chronological age showed any statistically significant differences. The control groups carried on the activities of reading readiness programs as planned by each teacher with an average of 20 minutes daily spent in such activities. The experimental group, during the six weeks of experiment, spent 10 minutes daily listening to both sides of a phonograph record on which initial and final consonants, initial blends, and some rhymes were presented. The lessons provided for exercises in listening, noticing how the sounds were formed, pronouncing, and in finding likenesses and differences; games and songs were used for many exercises. The records were used more than once; on consecutive days or
weeks, or both. At the end of the experiment the Murphy-Durrell Readiness test and a test of learning rate were given again. An original test was built both to test the sounds which had been taught and to see if there would be a transfer of the skill using words with sounds not taught.

Findings: The control group made a mean gain of 12.8; the experimental group had a mean gain of 12.7 as shown by the Murphy-Durrell auditory scores. The mean M.A. was for the control group 76.4, for the experimental group 75.7. The mean C.A. was for the control group 67., for the experimental group 68. The learning rate for the control group was 4.17 and for the experimental group was 4.10. The cases which had a zero score in auditory discrimination on the first test were matched according to mental age, chronological age, I.Q., sex, and learning rate. There were three matched control and experimental groups: one of 34 boys each, a second of 29 girls each, and the third of 63 boys and girls each. C.R. of both the boys and the girls was 2.82 in favor of experimental group, of the girls 1.07 in favor of experimental group and of the boys 3.39 favoring experimental group. Examining results from all other aspects: (children with high auditory discrimination ability in experimental and control groups, experimental and control groups in upper and in lower I.Q. levels, boys and girls of experimental and control group) none of the data were statistically significant. However, it was concluded that the recordings were just as good because the amount of gain was little different from a 10 minute period
with the records as from a 20 minute period of teaching with other techniques.

Purpose: to analyze possible relationships between certain aspects of speech and reading ability at the first grade level by analyzing the relationships of intelligence, hearing acuity, auditory discrimination, speech sound discrimination, articulation, and reading ability.

Materials: The Pintner-Cunningham and Otis Quick Scoring Tests were used as measures of intelligence. The Detroit Word Recognition Test and the auditory discrimination section of the Murphy-Durrell Reading Readiness Test were administered. To test auditory acuity the Massachusetts Pure Tone Screening Test was used. A revision of the Mansur Speech Sound Discrimination Test was used as a test of auditory discrimination for speech. An individual test devised by the group conducting the study was used to measure articulation. The reliability of the test, determined by the split-halves method, was .88.

Procedure: The tests were administered to 425 first grade children from nine public school systems.

Findings: The relationships between articulation and speech sound

*Simmerman, Amy-Jean
Nakashian, Phyllis M.
Fulton, Lawrence E.
Leary, Mary A.
McNamara, Ann Y.
Wise, Pauline M.
discrimination $r = .17$, reading ability and articulation $r = .10$, and articulation and auditory discrimination $r = .18$ were low. The coefficient of correlation for reading ability and auditory discrimination was $.48$. When the children with poor articulation were considered separately, they were found to be consistently poorer than the whole group in all other aspects. The greatest difference between the children with poor articulation and the whole group was in sound discrimination. Low intelligence appeared to be a factor in contributing to poor ability but not to poor articulation. Hearing loss did not contribute to poorer speech sound discrimination or auditory discrimination.

Purpose: to discover the relationship between articulation and auditory discrimination in kindergarten children.

Materials: The individual articulation test, and the individual speech sound discrimination test used in the Dumbleton study were used. A test of auditory discrimination of sound elements was constructed in which initial and final p,m,f,s, and initial r were taught by meaningful dramatization and visual, auditory, and kinesthetic clues; a sample test item was next presented, and then the actual test for each sound - four pictures in each row of which three were to be marked as representing the initial or final sound the teacher had dictated.

Procedure: The tests were administered to approximately 200 children between February and May.

Findings: The mean score for the articulation test was 43.0, for the speech sound discrimination test was 65.2, and for the auditory discrimination test of reading readiness and speech development was 82.0. The coefficient of correlation between the auditory discrimination test and the articulation test was .00, between the speech sound discrimination test and the auditory

*Borriello, John F., Gray, David Leonard Merlin, Dolores
discrimination test was .01 and between the articulation test and the speech sound discrimination test was .02.
Carroll, Marjorie Wight. *Sex Differences in Reading Readiness.*
Ed.M. 1941. 43 p.

**Purpose:** to determine the type and scope of sex differences evidenced in tests given during the reading readiness period.

**Materials:** Stone and Grover Classification Tests for Beginners in Reading (a test of visual discrimination), Monroe Reading Aptitude Tests, Gates New Work-Play Standardized Reading Readiness Tests, Dearborn-Cushman's Ready-to-Read-Games, and Gates Primary Reading Tests (achievement).

**Procedure:** The results of over 500 children from the Stone and Grover test were obtained from an unpublished survey made by Zeta I. Brown. These scores were separated according to sex and statistically analyzed. The scores of 82 children on the Monroe Reading Abilities Test obtained from two different schools in the same town were divided according to sex and statistically analyzed. For a second Monroe study, the scores from the same test on 185 children in a city were divided and analyzed. For all but the optional sections on the Gates test, the number of case results available was for the girls in the 140's and in the 180's for the boys. Results of the Dearborn-Cushman test of two groups with 101 girls and 110 boys in each were separated and analyzed.

**Findings:** The analysis of the Brown Study showed differences on two of four parts to be slightly, although not significantly,
in favor of the girls. In June of the same year, Gates Primary Reading Tests were given to 414 of the same children in the Brown Study; the mean scores were: girls 3.2 and boys 1.7, with a C.R. of 10.5 in favor of the girls. The analysis of both Monroe results showed all differences to be in favor of the girls although none were significantly so. In the first five sections (non-optimal) of the Gates tests, results showed very slight differences in four sections - two in favor of boys, two in favor of girls. Only the Word Card Visual Perception test showed significant difference (C.R. 7.4) in favor of the girls.
Purpose: to determine sex differences in reading readiness at the beginning of the first grade.

Materials: Murphy-Durrell Diagnostic Group Reading Readiness Test, and the Kuhlmann-Anderson Intelligence Test were used.

Procedure: The Murphy-Durrell test was administered at the beginning of the school year to 2,641 first grade pupils. The scores of the auditory and visual tests were tabulated according to sex, C.A., and M.A.

Findings: In auditory discrimination there was a difference of 4.35 between the mean of the boys and the girls with a significant C.R. of 4.2. There was a difference of 1.98 between the mean of the boys and the girls in visual discrimination, and a significant C.R. of 4.4. There was no correlation found between C.A. and auditory test scores. No correlation was found between C.A. and visual test scores. For each three months of C.A., there was a definite significance in mental age level. For each six months of M.A., there was a positive correlation with auditory and visual test scores.

Purpose: to evaluate the effects of word study and word enrichment techniques on the rate of learning to read in Grade One.

Materials: Pintner-Cunningham Primary Intelligence Tests, Form B. Detroit Word Recognition Tests, Form B. Twenty-four words from the International Kindergarten Union Vocabulary List were chosen. Check-sheets for indicating the words each child knew and pictures for word enrichment were made.

Procedure: Pintner-Cunningham and Detroit Word Recognition Tests were administered by the writer to the 122 boys and girls in the six first grades in a small residential town. The twenty-four words were divided into three groups of eight words each. Each group of eight words was taught to two different first grades. The four words which were taught by word enrichment in one school were taught by word study in the other. The word study method consisted of looking at the printed word, hearing the examiner pronounce it, the class pronouncing it, attention being called to the general appearance, the class studying the word, showing it on a flashcard, and each pupil individually saying and framing the word. The word enrichment method consisted of looking at the word, the examiner pronouncing it, the class pronouncing it, showing it on a flashcard, the individual child pronouncing
it, enriching the word through a picture, and enriching it through conversation. Many practices were given with each word, such as matching the flashcard with the printed word on the blackboard. Each child was finally tested on all eight words in a flashcard drill. An hour after teaching, each child was tested individually on his ability to recognize the eight words. The number of words which he could read was his learning rate, a word not known after five seconds was told him and not counted.

Findings: The difference between the word study and word enrichment methods was not statistically significant. The relationship of mental age and the rate of learning of the high mental age group and a similar relationship of mental age and rate of learning of the low mental age group showed no statistically significant differences between the two techniques.

Purpose: to determine whether there is any difference in the rate of learning of colorful and abstract words in grade one.

Materials: Marion Monroe Reading Aptitude Tests. Pintner-Cunningham Primary Intelligence Test. Detroit Word Recognition Test, Form A.

Procedure: For this study learning rate was equal to the number of words a child could recall at sight three hours after a twenty minute period of teaching 10 unfamiliar words, five abstract and five colorful. In all, 30 different words were used from a third grade reader. The learning rate was tested three times with 66 children whose mean C.A. was 6-3 and mean M.A. was 6-2. Each colorful word was written on the board, pronounced by the teacher then by the class, exposed on a flash card while each child pronounced it, and given meanings through pictures and conversation. Each abstract word was printed on the board, pronounced by the teacher and class, studied for configuration, presented on a flash card while each child pronounced it and framed it with his hands, and used in sentences to illustrate meaning. As each new word was introduced, the others were reviewed by finding, framing, and reading it, or by matching the card with the word on the board. At the end of one hour the children were individually tested with flash cards to determine the number of words retained. Two hours later they
were retested and the words retained considered to be the rate of learning.

Findings: There was a critical ratio of 4.2 in favor of the colorful words over the abstract words. There were no statistically significant differences between the learning rates of boys and girls on either the colorful or abstract words nor in their scores of reading achievement on the Detroit Word Recognition Test. The comparison of reading achievement and learning rate showed a correlation of .635.

**Purpose:** to compare the rate of learning of colorful and abstract words by first grade children.

**Materials:** Detroit Word Recognition Test, Form A, for Primary Grade. Thirty words, 15 colorful and 15 abstract were chosen. International Kindergarten Word List and Hodgkins’ Word List were used to check the vocabulary words. Flash cards for all the words and pictures to enrich the colorful words were made.

**Procedure:** Four classrooms, 136 pupils in all, participated in this study, during late November and early December. In each classroom the regular teacher arranged her class in three groups; best, average, and slow. Each group was taught the ten selected words for a 20 minute period, half of the time being used in introducing the words, and the other half in practicing. One hour later, each child was tested individually with flash cards to see how many words he knew. Another hour later, each child was retested, his learning rate being determined from this testing.

**Findings:** The differences found between the rate of learning colorful and abstract words was statistically in favor of the colorful. There was no significant difference between the learning rates of the boys and girls.
Boyle, Virginia Rose. **Learning Rate of Colorful and Abstract Words in Grade One.** Ed.D. 1950. 71 p.

**Purpose:** to compare the rate of learning of colorful and abstract words in grade one.

**Materials:** Kuhlman-Anderson Test, Grade One. Detroit Word Recognition Test, Form A for Primary Grades. From the third reader *More Streets and Roads* by Gray and Arbuthnot thirty words which also appeared on the International Kindergarten Union List and on Alma Hodgkins List were chosen.

**Procedure:** Five first grade teachers administered the Kuhlman-Anderson test to their own classes, then in three different sessions gave them the learning rate using five colorful and five abstract words each time. In twenty minute periods the words were taught first to the best group, then the average group, and finally the slow group; teaching (10 minutes) and practice (10 minutes) were constant for each group. One, two, and five and one-half hours later each child was individually tested using flash cards to see how many words he retained. The number of words remembered at the third testing was considered to be his learning rate. At the conclusion of the study each teacher administered the Detroit Word Recognition Test. The findings were recorded for a total population of 112: 58 boys with a mean C.A. of 6-3 and a mean M.A. of 6-4, and 54 girls with a mean C.A. of 6-1 and a mean M.A. of 6-3.
Findings: The mean learning rate for the group as a whole was 10.7 colorful words and 6.5 abstract words; a C.R. of 7.5 was in favor of the colorful words. Comparisons of the learning rate differences in abstract words, colorful words, and reading achievement showed no statistically significant differences. The relationship of learning rate to reading achievement showed a correlation of .76 with a probable error of .04.
Donnelly, Helen E. *A Study in Word Recognition Skills in Grade One.*

Purpose: to study the word recognition of first grade children, testing after the third, sixth, and ninth months of school.

Materials: For the first test, a random sampling of 75 of the first 500 words in the Gates vocabulary was used. The same words were used in the second test plus 50 more difficult words from the second 500 words in the Gates vocabulary. For the third test, the same words as in the second test were used plus 25 new and more difficult words.

Procedure: The first test was administered individually to 389 first grade children in two residential communities of New England after the first three months of school. At the end of the sixth month of school the same population, 369 cases this time, were similarly tested. Test three was given to 365 of these same people at the end of the ninth month, in each case checking their word recognition of a selected vocabulary. The test words were printed in lower case, large print, on three by five cards. They were exposed and recorded as immediately recognized, immediately missed, studied and recognized, or studied and missed.

Findings: It was not possible to determine with certainty the decile position of a child in the test of the sixth month from his decile position in the test of the third month.
correlation between the two was .78 ± .02. In general, it could be predicted in the ninth month by the data from the sixth; correlation between the two was .905 ± .006. Those pupils making a low score in the third month tended to make a comparatively low score in the ninth month; correlation between the two was .57 ± .025. There was no significant difference between the mean scores of boys (21.4) and girls (23.5) at the end of the third month. There was a significant difference (C.R. 6.8) at the end of the sixth month, boys 47.5 and girls 60.4. At the end of the ninth month, the difference was also significant (C.R. 5.3), boys 76.9 and girls 90.2.

Purpose: to find word perception errors made by first grade children in the vocabularies of the Row, Peterson pre-primers and to determine the persistence of those errors.

Materials: Pintner-Cunningham General Ability Test and Lee-Clark Reading Readiness tests. Seventy-eight vocabulary words were chosen from *Skip Along*, *Open the Door* and *High on a Hill*.

Procedure: The readiness test was administered to 62 children in September, and two groups were formed: group I had a readiness score of 49; group II had a readiness score of 38. The general abilities test given in November showed that group I had an M.A. of 5-10 and group II had an M.A. of 5-6. At the conclusion of the reading of the pre-primers the children were tested on the vocabulary which had been made into an original story. Each child read the story individually and the teacher indicated the errors. Group I, which finished first, was tested in January and again in April; 57 of the words showed a persistence of error. Group II finished and was tested in April and again in June; 60 words showed a persistence of error.

Findings: Proper names were easy for the children to learn. Abstract words were hardest for the children to learn. Slow children made the same types of errors as bright children but made more of them and the same words were difficult (or easy) for both slow and bright children.

Purpose: as stated in the title and also to discover which words were the easiest and which the most difficult to learn.

Materials: California Short Form Test of Mental Maturity for the Primary Grades. Science Research Associates Primary Mental Abilities Tests. Vocabulary from the Scott Foresman basic readers was used in building six story-type tests.

Procedure: For a total population of 392 children the reading program was carried on as usual by the classroom teachers. As each group in the classrooms finished a pre-determined section of reading, members of the group were given an individual oral reading test which contained the vocabulary in the stories just concluded. The teacher had copies of the story on which she recorded the words each child miscalled. After five initial tests were given, a re-test containing all the words was administered.

Findings: It was found that the three most common types of error in the order of greatest frequency were (1) words not known

*Nocman, Anne E.
Kilpatrick, Sister Mary Damian.
by the children, (2) words totally mispronounced, and (3) substitution of words with similar forms and ideas. They found also that persistency of initial errors and frequency of types of errors were very low as indicated by the re-test. Included in the study are lists of words showing the frequency and types of error.

Purpose: to find the relationship between certain readiness factors and reading achievement in grade one.

Materials: The Scott Foresman series pre-primers and primer, the Pintner-Cunningham Primary Test and the Murphy-Durrell Reading Readiness Test.

Procedure: All (94) of the first grade children, mean C.A. 76.9 months, in a small industrial community were included in the study. The mental ages, mean 84.3 months, were taken from the school records of the Pintner-Cunningham Primary Test which had been given in September. The Murphy-Durrell Reading Readiness Test was administered to obtain scores of auditory and visual discrimination and learning rate. An individual oral reading inventory test was built which included the vocabulary of the pre-primers and primer of the Scott Foresman series. Four short stories were written using the words in situations different from those in the readers. This test was administered in early February after the pre-primers and primer had been completed.

Findings: The three factors studied showed a positive relationship with reading achievement. Learning rate had a .67 correlation with reading achievement, the highest of the factors studied. Auditory discrimination had a .66 correlation with reading
achievement and visual discrimination had a .55 correlation with reading achievement. In comparing the achievement of boys and girls in the various areas, the only significant difference was found in visual discrimination in which the girls were superior to the boys by 4.9 points on the Murphy-Durrell Readiness Test. The learning rate and auditory series showed almost no difference, the mean difference being .11 in the girls favor and 3.92 in favor of the boys. The difference in reading achievement was not statistically significant, but the mean difference was 12.90 in favor of the girls.

Purpose: to find the relationship of the following readiness factors in beginning reading: Motor Skills, Visual Discrimination, Auditory Discrimination, Mental Age.

Materials: Gates Reading Readiness Test, Pintner-Cunningham Test of Mental Ability, Murphy Test of Visual and Auditory Discrimination, Detroit Word Recognition Test, Original Test of Motor Skills.

Procedure: In September 105 first grade children (57 boys and 48 girls), were given the reading readiness, mental abilities, and visual and auditory discrimination tests as well as the original test of motor skills which consisted of: (1) swinging and jumping rope (2) balancing and hopping on one foot (3) throwing a ball along a foot-wide path for distance (4) bounding a ball (5) articulation of 20 words (6) speed of speech saying three words as many times as possible in 15 seconds each, (7) drawing a line from one beginning point to final point passing through other points in between (8) drawing a line vertically from one end (1/16" wide) of a path to the other (1/4" wide) which was six inches away. Also to be scored on the motor test were such things as: tying shoes, putting on wraps, using a pencil, and crayons, etc. In February the Detroit Word Recognition Test was given. The mean C.A. of the group was 6-6, and the mean M.A. was 7-1.
Findings: All the factors showed low positive correlations ranging in the following order: Mental Age .55, Auditory .42, Visual .35, Readiness .35, and Motor .03. Sex differences showed correlations of mental age with reading achievement to be slightly higher for the boys, while correlations of visual and auditory discrimination and reading readiness to be higher with reading achievement for the girls.

Purpose: to determine the effect of individual instruction in beginning reading on reading achievement and the number of books read.

Materials: The Revised Stanford-Binet Tests of Intelligence scores were used to obtain M.A. Gates Primary Reading Tests were used to determine reading achievement.

Procedure: Seventy-five first grade pupils with a mean C.A. of 6-4 and a mean M.A. of 7-8 following the usual group reading procedures, served as a control group. Nearly matching them with a mean C.A. of 6-5 and mean M.A. of 7-9 were 57 children in the experimental group. The children in the experimental group met for preparatory work and word practice in groups at first, but the book reading was done individually. They were required to read the three pre-primers from the Scott Foresman series after which they were placed on a free reading program. Each child was allowed to choose his own books which were recorded on individual cards also used for noting difficulties requiring special help. They met in their classes as a whole or in groups only for basic training in word analysis or when some difficulties were found to be fairly common. Silent reading was done at their desks, while oral reading was done individually either to the teacher or to another pupil. Each progressed at his own rate of speed.
The Gates Primary Reading Test was given in April.

Findings: The differences in mean score on the reading test were not statistically significant, although they did favor the experimental group. The mean number of pre-primers read was significantly (C.R. 4.5) in favor of the control group. There were no statistically significant differences in the number of primers read. The mean number of first readers and above read was significantly (C.R. 3.6) in favor of the experimental group.

Purpose: In comparing the effect of kindergarten trained and non-kindergarten trained children the following relationships were studied: Achievement and intelligence, achievement and reading readiness, and sex differences in both categories.

Materials: Pintner-Cunningham General Ability Test - Form A, Metropolitan Readiness Test, Metropolitan Achievement Test - Form R. The study was conducted on 247 first grade children, 130 who had had kindergarten experience and 117 who had not.

Procedure: During the second week of school the general abilities test was given by the author to groups of eight children at a time. During the last week in September the readiness test was given to groups of 10 or 12 at a time; in the weeks preceding this test, those children who had not had kindergarten training were allowed time for training in the experiences which would broaden their interests and build up a reading background. At the close of the experiment, achievement was measured on groups of 15 pupils at a time.

Findings: Between kindergarten and non-kindergarten groups there was not a statistically significant difference in reading achievement. There were also no significant differences in comparing kindergarten boys and non-kindergarten boys, or kindergarten girls and non-kindergarten girls, or kindergarten
girls and kindergarten boys, or non-kindergarten and non-
kindergarten boys. In comparing reading readiness the mean
score for kindergarten groups was 46.8, for the non-kindergarten
group 39.5 (C.R. 7.1 in favor of the kindergarten group);
kindergarten boys 46.0 non-kindergarten boys 38.9 (C.R. 4.7
in favor of the kindergarten group); kindergarten girls
47.5 non-kindergarten girls 40.0 (C.R. 5.2 in favor of the
kindergarten group); no significant differences between
kindergarten boys and girls or between non-kindergarten boys
and girls. The group was broken down into I.Q. below 90,
I.Q. 90-110, and I.Q. above 110. The only group that was
large enough to study was the 90-110 I.Q. group. In making
the comparisons in this group between kindergarten and non-
kindergarten children no significant differences were noted.
Finally 60 kindergarten children who matched exactly the
I.Q. of 60 non-kindergarten children, were paired and
compared. There were no statistically significant differences.

Purpose: to analyze the effect on beginning reading of a planned program of language enrichment in kindergarten.

Materials: Pintner-Cunningham Primary Test for mental age, Metropolitan Readiness Test Form R. Companion Metropolitan Achievement Test Form R. Regular kindergarten units were followed, special emphasis being placed on the language arts.

Procedure: From 14 first grade classrooms 50 children who had had a year of the kindergarten planned language enrichment program were selected as an experimental group, while 50 children who had had no previous specific training were chosen for the control group. The mean M.A. for the experimental group was 82.6 and for the control group was 70.2. In October the readiness tests were given, and in May the achievement tests were given.

Findings: The difference of the means on the readiness test was 13.1, a C.R. of 6.3, in favor of the experimental group. There was no statistical difference on the achievement test. Therefore it would seem that a planned program does help in beginning reading, but does not affect reading achievement as shown at the end of the year.

**Purpose:** to find if the number of days pupils are absent in the first grade has any relationship to their reading achievement during the third, fourth, and fifth school years.

**Materials:** From the records of 162 children attending grades one through the beginning of six in a school system, the following data were taken: (1) the number of days each pupil was absent in grade one (2) the average reading grade levels obtained from the Metropolitan Achievement Test scores at the beginning of grades four, five, and six.

**Procedure:** The 162 cases were arranged in chronological order according to the number of days absent, after which they were divided into groups in order to make comparisons between low absence and high absence groups. Thirty pupils were absent 0-5 days, 35 absent 5.5-10 days, 37 absent 10.5-15 days, 25 absent 15.5-20 days, 17 absent 20.5-25 days, and 18 absent 26.5-30 days, (only one of the latter group exceeded 30). The mean C.A. of all six groups was between 9.3 and 9.7. The mean M.A. of all groups was between 9.2 and 9.5. The achievement scores of each group were then compared at the fourth, fifth, and sixth grade levels. At that point in the study, 27 low absence cases were matched with 27 high absence cases with no more than three months difference in mental age between each pair. Comparisons were made of mean absence,

Findings: None of the data in the group comparisons nor in the comparisons of the 27 pairs was statistically significant. It was therefore concluded that prolonged first grade absence might affect reading achievement in the first and second school years, but tends to level off as progress is made through the intermediate grades if I.Q. is average or above.
Smart, Alice Marie. *Diagnostic Reading Readiness Test.*
Ed.M. 1941 146 p.

Purpose: to devise a test which will indicate a child's readiness to undertake a formal reading program and will diagnose his inadequacies in any of the factors essential to such readiness.

Materials: The Manviller Word Recognition Test was given to determine the ability of the groups. The International Kindergarten Union and Durrell Intermediate Vocabulary lists were used in choosing words or parts of words. Sections of the Durrell-Sullivan Reading Analysis Test and of the Durrell Analysis of Reading Difficulty were used in constructing the diagnostic test. The Detroit Word Recognition Test, Form A was used for correlation to determine the validity of the test that was constructed.

Procedure: Results of the Manviller Word Recognition Test given in February showed that the five first grades used in the experiment were average classrooms with superior, average, and poor readers. In the last three weeks of March and the first two in April, the 103 children were tested using the original reading readiness test. The test consisted of six parts: (1) visual perception (2) motor coordination (3) auditory perception (4) vocabulary index (5) auditory-visual perception (6) comprehension. In its final form the test was wholly individual; however, for experimental use part of the test was administered to individuals and part to groups in order to conserve time.
Findings: The correlations of the various parts of the test with the Detroit Word Recognition Test were: visual perception .62±.03, auditory perception .60±.04, auditory-visual perception .55±.04, vocabulary .46±.05, comprehension .18±.06. The correlation of the previous tests combined was .69±.03. The order of difficulty was determined for each item within each part of the test. On the basis of the item analysis the test was revised.

Purpose: to determine the most important factors to measure for indicating reading readiness, and to construct a battery of tests which would measure those factors successfully.

Materials: The following five reading readiness tests were examined for indications of the factors most frequently measured: Lee-Clark Reading Readiness, Metropolitan Reading Readiness, Monroe Reading Aptitude, Van Wagenen Reading Readiness, and Gates Reading Readiness.

Procedure: The test which was built consisted of twelve sub-tests: (1) picture matching (2) picture-card matching (3) letter-card matching of large capitals (4) letter-card matching of small capitals (5) letter-card matching of lower case letters (6) word matching (7) word-card matching of words written with capitals (8) word-card matching of words written with lower case letters (9) rhyming test (10) initial sounds using pictures (11) motor coordination following dots in an irregular line (12) motor coordination following dots in a straight line. The test were given to 387 kindergarten children varying in chronological age from four to eight years; the majority of cases fell between four years and six months and five years and six months.

Findings: The sub-tests had the same order of difficulty for those four years five months and under, those four years and
six months to five years and five months, and those five years six months and older. The tests discriminated well between the chronological age groups and between the mental age groups in the forty cases where mental ages were available. There were no significant differences between the results obtained by the girls and the boys on any of the twelve sub-tests.

Purpose: to see if children would benefit more by each of several separate tests or by a combination of them.

Materials: Marion Monroe's Reading Aptitude Test. Arthur Gates' Reading Readiness Test. Helen Murphy's Unpublished Test. Detroit Word Recognition Test, Form A.

Procedure: Monroe's, Gates', and Murphy's tests were carefully examined to discover methods used in testing auditory discrimination. It was found that Monroe tested only the middle sounds in words, Gates tested only rhymes, while Murphy tested beginning and final consonants, and beginning blends. A four section test was then built, the first three sections, using pictures, followed the three methods of Monroe, Murphy, and Gates. Section four also tested beginning and final consonants, and beginning blends; however, the children chose the one of three different words (rather than pictures) beginning like the stimulus word; the examiner read all words to the children. The test was given to 201 children with a mean C.A. of 6-7. There were 102 boys and 99 girls.

Findings: The mean score for the group was 69.6, for the boys 69.0, and for the girls was 71.0. An item analysis using the 50 highest and the 50 lowest scores with a 20% difference
in the scores of the high and low groups was done. It showed that initial and final consonants and beginning blends were of more value than middle sounds and rhymes. C.A. had little effect on auditory discrimination. The correlation between auditory discrimination and M.A. was low. The correlation of reading scores and auditory discrimination was .47. For the group having the highest reading scores, a test using words instead of pictures proved to be just as effective and reliable.

**Purpose:** to discover the functions tested, the nature of the items, and the reliability as presented by the publishers.

**Materials:** American School Reading Readiness Test, Public School Publishing Company.

Classification Test for Beginners in Reading, Webster Publishing Company.

Diagnostic Group Reading Readiness Test, World Book Company.

Gates Reading Readiness Test, Bureau of Publications, Columbia University.

Lee-Clark Reading Readiness Test, California Test Bureau.

Metropolitan Readiness Test, World Book Company.

New York Reading Readiness Inventory, Bureau of Reference.

Reading Aptitude Tests, Houghton Mifflin Company.

Reading Readiness Test, Educational Test Bureau, Minneapolis, Minnesota.

Sangren Information Tests for Young Children, World Book Company.

Stevens Reading Readiness Test, World Book Company.


**Procedure:** Each test was analyzed individually. A sample of each test booklet was presented along with such information as: purpose of the tests, when and how to use them, materials
needed for giving the tests, directions for administering them, description of types of items, validity, reliability, directions for scoring, standardization, and whether they provide interpretations and recommendations.

Findings: In addition to the individual information explained above, it was found when the tests were compared that the number of sub-tests in each test varied from seventeen to one. The area with the greatest number of items was visual perception with 541 items in the tests; the area of laterality had the fewest (13) items.
Farrington, Julia Harriett. *The Prediction and Evaluation of Readiness and Intelligence Tests in Seven First Grades.*


**Purpose:** to investigate the value of the Monroe Reading Aptitude Test and The Science Research Associates Mental Abilities Test in regard to their ability in predicting reading achievement.

**Materials:** The Monroe Reading Aptitude Test and The Science Research Associates Mental Abilities Test were used to measure reading readiness and intelligence respectively. The Metropolitan Reading Achievement Test was used to determine reading achievement.

**Procedure:** In the spring of the kindergarten year, the children were given the Monroe Reading Aptitude Test. During the fall of the first grade year, they were tested with the Science Research Associates Mental Abilities Test. That spring the Metropolitan Reading Achievement Test was administered. The scores of the tests of 134 children were available for analysis.

**Findings:** The correlation of the Monroe Reading Aptitude Test scores with the Metropolitan Achievement Test scores was \( r = 0.475 \) with a standard error of \( \pm 0.066 \). After the I.Q. scores had been divided into three groups (retarded 70-89, average 90-109, and superior 110 and above) the correlation of the Science Research Associates Mental Abilities Test scores with the Metropolitan Achievement Test scores was determined. The retarded intelligence quotient group had a correlation of \( r = 0.353 \) with a standard error
of .291, the average group had a correlation of .335 with
a standard error of .127, and the superior group had a
correlation of .345 with a standard error of .101.
Maskell, Eleanor I. The Construction and Evaluation of a Group

Purpose: to construct and evaluate a group auditory test of word analysis for grade one.

Materials: Lee-Clark Reading Readiness Test. Detroit Word Recognition Test. A Group Auditory Test in Word Analysis for Grade One was constructed.

Procedure: A six page test was built using the order of difficulty established by Biggy and the order of presentation used by Murphy. The first section tested beginning sounds and blends; the child was to look at a square containing a letter or blend in each corner - the examiner pronounced four words beginning with same letter and the child was to mark whichever of the four letters or blends the words began with; there were four sample blocks. The second section tested rhyming sounds by means of pictures; child was to mark box with picture which would rhyme with a word ending pronounced by examiner. Section three also tested rhymes; however, the child marked a printed word rather than a picture. Section four which was set up like section one, tested final sounds and blends; there were two practice blocks. Sounds of letters and word parts were tested in section five. In section six the child was to circle the letter whose name the examiner pronounced. Lee-Clark Reading Readiness test had been given in September. In February the original test was given to five first grade classes totaling
124 children. The test which took 35 minutes was given in two sittings. Children in each class were ranked highest, middle and lowest according to teachers' marks of their school achievement. The groups from the various schools were combined making a total of 52 high, 31 middle, and 41 low. About a week later the Detroit Word Recognition Test was given.

Findings: When the results of the three tests were compared, the mean scores for each group were: Lee-Clark Reading Readiness Test, high 54.7 middle 49.3 low 38.2; Group Auditory Test, high 73.8 middle 58.3 low 47.3; Detroit Word Recognition Test, high 21.4 middle 14.7 low 6.3. In all three tests the difference between high and middle, middle and low, and low and high were statistically significant. The coefficient of correlation between the Group Auditory Test and the Detroit Word Recognition Test was .65. Sections one, four, five, and six were determined satisfactory; section two was too easy except in the low group, and section three was too difficult for all groups.

Purpose: Because in the Murphy-Durrell Diagnostic Reading Readiness Test there was no indication whether the zero scores in the auditory discrimination section were due to complete lack of auditory discrimination or simply that the existing tests were too difficult for many children at the levels tested, this study attempted to devise an instrument which would better distribute these zero scores.

Materials: The group conducting the study constructed their own tests.

Procedure: Since this was an exploratory study, no attempt was made to equate groups. All consonants which could be presented in dramatization or by pictures were used in initial and final positions wherever possible for teaching and testing. In all, five forms of teaching were used and tested. Each form contained one plosive, one nasal, two fricatives and one semi-vowel. The test for each form consisted of five rows (the first a sample row) of four pictures; three of the pictures which began or ended with the sound to be tested were to be marked by pupil. Form I was used in the Averell study. Forms II, III, IV, and V were each administered to 55 kindergarten

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children in groups of 10 or less. Each form consisted of four steps: step one (a dramatization of the sound to be presented) and step four (the presentation of the sample test item prior to testing) were alike in all forms. Step two and three varied as follows: Form II - in step two the teacher said words beginning or ending with the sound being tested, while in step three the children tried to identify the words beginning or ending with sound being tested, from a list of four words one of which did not begin or end with sound being tested; Form III - for step two, large pictures whose names began or ended with the sound being tested were shown, and their names pronounced, while in step three a series of four large pictures, one of which did not begin or end with sound being tested, were shown and children tried to identify the three correct responses; Form IV - in step two the teacher said the words and the children repeated them each time, while for step three they had to identify the three correct responses from a series of four words; Form V - for step two the teacher pronounced the words which the children repeated each time, while in step three the children walked to the front of the group and marked the three of four large pictures beginning or ending with the sound to be tested.

Findings: Form II containing 128 items showed mean score 42.2 standard deviation 23.2, 43 significant items. Form III containing 128 items showed mean score 17.9, standard deviation 20.5, 40 significant items. Form IV containing 112 items showed mean score 45.9, standard deviation 24.6, 21 significant items.
Form V containing 144 items showed mean score 83.2, standard deviation 29.5, 18 significant items. It was concluded that because of the small number of significant items the test could not be used as a measure of auditory discrimination, but that the test material appeared useful as a teaching aid in introducing new sounds.