AN EVALUATION OF THE PLACEMENT PLAN FOR FIRST YEAR ENTRANTS IN THE TULSA PUBLIC SCHOOLS

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CHAPTER I

INTRODUCTION

The Public Schools and Reading

The ability to read, at one time practically the only distinguishing mark of an educated person, is still of greater importance today, since much essential growth in all fields of learning is accomplished through this fundamental skill. At one time a mark of literacy, it has in recent years been accepted as a tool of first importance because it makes available, through its use, the vast storehouse of information so necessary in interpreting the problems in everyday living.

Mason A. Stratton,[1] an elementary school principal of Atlantic City, New Jersey, says:

> Are we, as administrators and teachers, satisfied with our own programs of reading instruction? We ought to be doing a better job in reading than in any other major field of the curriculum, for in no other field has so much careful research been carried on. Yet both the amount and quality of the reading done by children and adults in general are disappointingly low. No, we cannot relax in our effort to develop sound reading habits, interests, and tastes in children. The need for these attributes, both in school and out, is greater now than ever before.

The universal necessity for reading is a comparatively new thing. In the early American schools, children who did not respond rapidly to reading or any of the school's offerings were soon eliminated. With little or no opportunity and only slight encouragement when school was available, there was little in life outside of

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[1]Mason A. Stratton, "A Contribution to Better Reading," The National Elementary Principal, Seventeenth Yearbook, Department of Elementary School Principals, National Education Association, Washington, D. C., 1938, p. 230.

school that required special effort to acquire any of the necessary tools of literacy. Arithmetic was a little more essential since a person possessing a small knowledge of it had the opportunity of making a sharper trade or might avoid losing to a neighbor more skilled in numbers.

Changing social conditions, however, added impetus to the efforts of the school until today the person who cannot read is not only illiterate, but is denied most of the sources of information so essential in the performance of his duties in a democratic society. Reading, therefore, is the most essential of all the offerings of the school. With its universally recognized importance have arisen problems unknown when only a small percentage of the nation's children was enrolled in the school.

The activities of the people have been accepted as the source from which one's needs and interests arise. A person in modern society needs to be able to identify his home address, the items of food in a grocery store, the medicine he uses, the contents of letters, the contents of a newspaper, and those documents commonly used to transact his business. To be unable to do these simple tasks makes him dependent upon others and places him in a position where he may fall victim to the misrepresentation of unscrupulous people. Competency in performing these tasks involves the ability to read.

The individual's need for reading in the communication of thought is obvious. As a means of securing information which may be used in the formation of ideas and as a check on the authenticity

of ideas supplied by others, its importance is readily recognized. It is the most valuable of the language arts in setting a style and providing material for the expression of ideas. Experiences available to but few may be acquired vicariously; otherwise, the individual would either be denied or would of necessity spend a lifetime acquiring them in a first-hand manner. Reading also provides a pattern for thinking, which in turn, probably offers a material contribution to one's ability to express himself in oral or written language.

Intellectual independence is necessary in the child, both in reading and writing letters and in the use of reading to interpret the material used in school. He must be able to evaluate the materials he reads in terms of their usefulness in solving problems in and out of school. Through wide reading he is able to increase his scope of information and secure a sense of personal independence because of an increased range of reserve material that may be useful in interpreting the conditions in his social environment. Literature, in turn, may enrich his living and provide many hours of wholesome enjoyment and emotional stimulation.

Individual needs for independence in reading are so many and varied and so obviously important that to enumerate more than a few of them is unnecessary. To fail to recognize their variety and scope by not providing for the adequate growth and development of the individual child would seriously impair even a minimum program in reading.

Growth and achievement in society are not possible without a variety of contacts with other individuals and groups which may or

may not contribute to the realization of our own ends. This process will, of necessity, be competitive. If we hold the standards of idealism which should operate in a democracy, then all our experiences should contribute to the growth of personal qualities commensurate with our ideals. Both the means and the end must be considered. Personal attainments should be directed toward social adequacy, meeting like qualities in others.[2] This educative process, however, demands proficiency in reading that this efficiency may enable us, in turn, to direct our efforts toward the most effective solution of life's many problems. Thus, one may acquire the tools which enable him to meet his fellows competitively and co-operatively by developing abilities as rapidly as is consistent with the individual needs and capacities. Dorothy Canfield Fisher says, "The only chance children have for satisfying life is by finding out, each one, what he is especially good for, and developing that--not to make their livings at it, necessarily, but because it will make life more lastingly worthwhile to them."[3] The reward is a sense of personal achievement arising out of sincere effort. That individual consideration in the treatment of special difficulties is necessary is also well established. The facilities of the school must, therefore, be directed toward the child's maximum development in reading in order that he might be able to use reading in as effective manner as possible in meeting the requirements of society.

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[2]Jesse Williams, "Criticism and Competence as Ideals in Education," Teachers College Record, Vol. 39, pp. 701-706.

[3]Dorothy Canfield Fisher, "Schooling for Youth in the Light of Adult Education," The Educational Record, Vol. 19 (July, 1938), pp. 363-384.

Pertinent Phases of the Problem

Recognized Difficulties in Learning to Read. Commonly recognized reading difficulties are traceable to psychological, physiological, or environmental conditions. Hildreth states that these difficulties include: (1) a lack of readiness for beginning reading; (2) inadequate intellectual maturity for the reasoning processes required in reading; (3) language immaturity; (4) physical and constitutional factors; (5) visual perception limitations; (6) social and environmental factors; (7) personality and emotional factors; (8) defects in methods of teaching and classroom organization.[4]

Evidence of Readiness as a Factor for Achieving in Reading. In studying the maturing process of children as evidenced by their behavior, we find that readiness to do things appears at rather definite periods or within certain age limits and that to force a child to a particular type of activity before he is ready usually causes strain and accomplishes little so far as the activity is concerned. There is a stage at which children learn to walk, talk, and perform other activities. The age limits at which these activities appear are comparatively broad.[5]

It is important that the teacher know whether or not the child, upon becoming a candidate for the first grade, is able to pursue the course of study ordinarily used at this level. The most reliable

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[4]Gertrude Hildreth, Learning the Three R's, p. 371.

[5]M. Lucile Harrison, Reading Readiness, p. 2.

single factor upon which teachers may place considerable reliance for readiness to begin reading is that of mental age. It has been found that, in order to make a satisfactory progress in reading, the child should be at least six years of age chronologically and six and half years mentally.[6] It should be understood, however, that an adequate mental age for reading readiness does not of itself insure success in reading.[7]

From the literature in the field of Primary reading the following views are expressed regarding the question of developing a readiness to read. Dolch says:[8]

> For a long time, first-grade teachers have known that some of their beginners were not yet ready to learn to read. Even with every possible encouragement and help, some of the little ones simply did not "catch on" as the others did. That is, they did not seem to have reading readiness. This situation was studied in a number of school systems and the results seemed to indicate that a state of reading readiness seemed to correspond to a mental age, as determined by intelligence tests of six and a half years. Some children five years old had this mental age, more children six years old had it, and some children did not seem to reach it until seven years old or later.
>
> We do not merely wait for reading readiness but try to develop it. To do so, we need to think of the different kind of readiness.
>
> 1. Physical Readiness means general health, good nervous condition, and correction of any sensory or speech defect.
>
> 2. School Readiness means fitting into a group, following directions and paying continuous attention. These are developed through many school activities and are necessary for the development of other kinds of readiness.

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[6]Mable V. Morphett, and Carleton Washburne, "When Should Children Begin to Read?" Elementary School Journal, Vol. 31 (March, 1931), pp. 496-503.

[7]M. Lucile Harrison, op. cit., pp. 7-8.

[8]Edward William Dolch, Teaching Primary Reading, pp. 21-40.

3. Language Readiness means an adequate stock of concepts and a considerable maturity in use of sentences. It is necessary for comprehension of and interest in the reading materials.

4. Interest Readiness means a real desire to find out what printed matter "says," a desire strong enough to overcome the obstacles that are in the way. We build up this interest in many ways and help keep it alive by making the beginning of reading less difficult.

5. Perceptual Readiness means ability to distinguish slightly different objects from one another, especially slightly different word forms. We develop perceptual readiness and also special perception of printed symbols.

These kinds of readiness depend on one another and grow out of one another. All are necessary for full readiness for beginning reading.

Individual Differences in Reading. That all students are not alike in their ability to learn to read has been recognized as an established fact, proved by scientific study. That it lies within the responsibility of the school to do something about the problem is a comparatively new idea. Society has been slow to recognize that all individuals were not created equal and could not be made to reach or maintain equality of status. Little was done toward formulating more scientific procedures in the solution of the problem until the schools recognized that inability to succeed on higher levels was in a large measure traceable to difficulties originating in the early school experience of the child and that retarded children presented instructional problems which made the efforts of the school less effective with other members of the group.[9]

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[9]Patterson, Choate, and Brunner, The School in American Society, p. 216 (1936).

There are two popular fallacies in regard to poor readers. The first fallacy is that any small child can be made to learn if sufficient pressure is put upon him. Small children can be taught to memorize words and to recognize them on flash cards and on a printed page. The fallacy here lies in the idea that word recognition means reading. It is, however, only one of the specific skills leading to reading which, in the last analysis, is the association of thought with printed symbols. Children can learn words and acquire a reading vocabulary without any understanding at all of the thought which the words are intended to convey.

The second fallacy is that all children are ready to read when the school is ready to teach reading. Many children have been conditioned to future failure in school by being forced into a formal reading situation which ignored their lack of readiness to learn to read.[10] In a broader sense, scientific study has done much in contributing to a more effective attack on these difficulties. Some of the causes are not only mental, but physical and emotional conditions.[11] Other causes are directly traceable to poor techniques, inefficient teaching and unfortunate accidents in the process of learning. Continued exposure to any of these conditions has a definite effect effect on the personality of the child and his attitude toward all the work of the school.[12]

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[10]Robert Hill Lane, The Progressive Elementary School, p. 71.

[11]Clarence Robert Stone, Better Primary Reading, p. 474.

[12]Arthur Irving Gates, The Improvement of Reading, pp. 13-17.

The Classification of First Entrants as Regards Learning to Read. The problem of adequately classifying children at the time of their entrance to the public school has received a growing emphasis during the last decade. Beall and Holmes express the problem as follows:[13]

> The fact that not all first-year entrants to the elementary school are ready for systematic instruction in reading presents a challenging problem to administrators and teachers. This problem has several aspects, as follows:
>
> 1. Insistence on the part of parents that their children can be given systematic instruction in reading soon after they enter school.
>
> 2. A feeling on the part of administrators and teachers that children must be pressed into a program of systematic instruction in reading at an early date.
>
> 3. The necessity of providing a modified program of instruction for those pupils who are not ready for instruction in beginning reading.
>
> 4. The need for discovering soon after entrance those pupils who are probably not ready, and those who are probably capable of successful achievement in beginning reading.

The literature provides an almost parallel case of practice as administered in the Tulsa public schools. James R. Hobson, Director of Child Placement, Public Schools, Brookline, Massachusetts, in an article in the Elementary School Journal on Reducing First Grade Failures,[14] recommends practically the same procedure, but it is to be noted here that his title places emphasis on subject matter

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[13]Ross H. Beall and Mossie Holmes, "Identifying Mature and Immature First-Year Entrants," The National Elementary Principal, Seventeenth Yearbook, Department of Elementary School Principals, National Education Association, Washington, D. C., 1938, p. 255.

[14]James R. Hobson, "Reducing First Grade Failures," Elementary School Journal, Vol, XXXVII. (September, 1936), pp. 30-40.

attainment. The following program is offered as one designed to reduce failures in Grade I:

1. Standards of admission to kindergarten and Grade I which will insure an average mental age well above six years for children entering Grade I without entrance examinations and a minimum requirement of a mental age of six years for younger children admitted through psychological examination.

2. A program of kindergarten activity and training which will give the experiential background, sensory training, speech development, and vocabulary necessary to success in reading.

3. A group test of reading readiness administered to all pupils near the end of the kindergarten year followed by an individual checkup of the physical and sensory readiness to read of all pupils whose group-test scores indicate some difficulty or handicap.

4. A continuation of preparatory training at the beginning of Grade I, such as pre-primer period, for those children who need it.

5. Individual diagnosis and remedial teaching for children, otherwise ready to read, who exhibit specific or unusual difficulties.

6. A program of training for all primary teachers in the specific techniques for discovering and remedying individual difficulties in reading.

7. A modification of the requirements made of those few pupils who are obviously not ready to read but whose age necessitates their placement in Grade I to the end that they may not experience hopeless failure even though repetition of the grade may be necessary.

What Criteria are Pertinent in Measuring Readiness to Read?

Chronological Age Factors. Since a chronological age of six years is the general basis on which entrance to the public schools is obtained, it is evident that this factor in maturing comes in for consideration regarding physical readiness for formal school contacts.

From the literature in the field the following is quoted regarding this factor:

Biglow says:[15]

> A child chronologically below six years of age with mental age between six years and six years and seven months, or a child chronologically between six years and six years and three months, inclusive, has some chance of success if he is sufficiently mature physically, socially, and emotionally. These cases should receive careful consideration.

Harrison believes:[16]

> In the light of these facts, we should no longer consider the sixth birthday as the open door to reading instruction. We may, it is true, select some children for first-grade entrance at that age or even a little younger if their mental ages are well in advance of the normal six-year-old and provided they are well developed physically, socially, and emotionally. For others we should postpone first-grade entrance until a time at which they have sufficient mental maturity to attack the complex skill of reading; for some of them it will be as late as seven years of age.
>
> Quality and quantity of achievement are always influenced by the general health status of the child. A child with low general health is likely to be listless, to be readily fatigued, and to have a much shortened attention span. He usually does not retain what he learns as well as he would were he in ordinary good health.

Cole, in discussing the maturity of the beginner in the elementary school says:[17]

> If his eyes are developing at a perfectly normal rate, at the age of six they are still too farsighted to see clearly so small an object as a word. It is not until a normal child is eight years old that one can be certain his eyes are mature. If he has normal six-year-old ears, he will still be unable to distinguish consistently between the sounds of "g" and "k," "m" and "n," "p" and "b," or any other pair of related sounds.

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[15]Elizabeth B. Biglow, "School Progress of Under-Age Children," Elementary School Journal, Vol, XXV (November 1934), pp. 186-192.

[16]M. Lucile Harrison, op. cit., p. 20.

[17]Luella Cole, The Improvement of Reading, p. 292.

Mental Age Factor. Criterion number two used in the classification of the pupils for reading instruction is mental age. Gates in treating this subject presents the following:[18]

> Another assumption is that difficulties in reading result from beginning the subject before the pupil is physiologically or mentally mature enough to master it. Mental immaturity (low mental age), incomplete development of the visual or auditory apparatus, lack of precision in motor control and speech are examples of organic or physiological deficiencies which may handicap the learner. The fact that several studies have shown that boys, who are believed to mature less rapidly in the earlier years than girls, are more frequently subject to reading difficulties is cited in support of the immaturity theory.
>
> That children immature mentally--for example, those whose Mental Age is less than six years--will find most beginning reading programs difficult is undeniable. Consequently, among reading failures will be found a large proportion of children with relatively low Mental Age. But children of average and superior Mental Age will also appear. The evidence that most of these are simply immature otherwise--in vision, hearing, perception, motor control, or in general--is not as yet convincing. Perhaps some, but certainly not all reading difficulties are due to mere organic immaturity of some sort. This is a possible type of explanation not as yet well explored.

Gates has apparently revised his point of view concerning mental age since in an article on the necessary mental age for beginning reading he expresses the following points of view and criticizes Harrison and Betts in their adherence to an attained mental age.[19]

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[18]Arthur I. Gates, The Improvement of Reading, pp. 9-10.

[19]Arthur I. Gates, "The Necessary Mental Age for Beginning Reading," Elementary School Journal, Vol. XXXVII (March, 1937), pp. 497-508.

> It has by no means been proved as yet that a mental age of six and one-half years is a proper minimum to prescribe for learning to read by all school methods. It is quite conceivable; indeed the evidence in general tends now definitely to show; that the crucial mental age level will vary with the materials; the type of teaching; the skill of the teacher; the size of the class; the amount of preceding preparatory work; the thoroughness of examination; the frequency and treatment of special difficulties, such as visual defects of the pupil; and other factors.

In describing an experiment conducted by Florence W. Ragues of the State Teachers College at Indiana, Pennsylvania, Gates points out in this article:

> that in addition to the usual equipment of books, the teachers were provided with a considerable amount of supplementary practice and teach-and-test materials. Two groups totaling 78 pupils were used in this experiment and the following correlations were found: Mental age with average reading age .62 ± .05; Chronological Age with average reading grade was .10 ± .08; The Number of Books Read with average reading grade was .84 ± .02.

As a means of locating possible crucial mental age for success in reading these pupils were grouped according to mental age by six-month steps beginning with a step containing pupils from the lowest in the list to five years inclusive; then from 5.0 to 5.5 inclusive; and so on to the highest. A mental age range from 53 months to 102 months was represented in these classes. Group inspection of data given shows that practically all of the near failures fell in the group with a mental age below five years. In the same article Gates presents three other group experiments. In the second group the minimum reading age was about one-half year higher. A third group required a mental age of about six years or one full year higher. In a fourth group which he stated represented the opposite extreme of the first group, children with a mental age of 6.5 "faired none too well."

Gates says the question must be asked "How and What is the pupil to begin to read?" In his conclusion he warns that the foregoing should not be interpreted to imply that the mental age is of no significance in learning to read. In the four experimental groups the correlationsbetween mental age and reading achievement were: .62 for group one; .55 for group two; .44 for group three; and .34 for group four. He says the most significant finding is the fact that the correlations between mental age and reading achievement were highest in the class in which the best instruction was done. He further makes no claim that it is desirable to begin reading at five and says that the optimum time to start has not yet been decided.

Dean found a correlation of .62 ± .03 between achievement in reading and mental age in experimenting with five first grade rooms in the Billings, Montana public schools.[20]

Dolch says:[21]

> It should be noted that the child's stage of mental maturity or mental age is involved in all our discussion of developing reading readiness. Each factor in readiness involves physical or mental traits and all of these traits have a certain natural process of maturing. These processes are being intensively studied by institutes and departments of child development in universities everywhere. The findings are published in many volumes. They emphasize that mental maturity involves many capacities. These may develop at different rates in any one child and differently in different children. They depend for their development partly on inner factors and partly on surroundings or stimuli. It is the teacher's task to influence the maturing of these capacities as far as she can and thus to develop those that produce reading readiness.

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[20]Charles D. Dean, "Predicting First Grade Reading Achievement," Elementary School Journal, Vol, XXXIX (April, 1939), pp. 609-616.

[21]Edward William Dolch, Teaching Primary Reading, p. 22.

Cole treats the question as follows:[22]

> It has been an educational assumption that children are ready to read when they are six years old. Some children are, but a considerable proportion are not. To be ready, a child must have sufficient intellectual development, maturity of speech and sense organs, plus social and emotional maturity. Intellectually, he must have a mental age of at least six and a half--and seven years is safer. With a lower mental age than six and a half he will not learn to read because he does not have the intellectual development necessary for so complicated a procedure.

The Tulsa plan holds that it is detrimental to both the immature and the mature to classify them in the same reading situation. The former are thus doomed to failure and the latter are handicapped by being held back in their progress. Nila Blanton Smith says: "The first grades throughout the country are clogged each year with pupils who fail simply because they are not mature enough mentally to engage in the formal reading activities as organized in our present classroom methods."[23]

Formal Readiness Tests as a Factor in Determining Reading Readiness. During the last few years there have been developed a great many tests designed to measure the extent to which the abilities required to learn to read are possessed by the first grade entrant. These testing devices are called reading readiness tests. One of these instruments that has found quite general use, is the Metropolitan Readiness Tests. The authors of these tests make the following statement:[24]

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[22]Cole, op. cit., pp. 281-282.

[23]Nila Blanton Smith, "Matching Ability as a Factor in First Grade Reading," Journal of Educational Psychology, Vol. XIX (1928), pp. 560-571.

[24]Hildreth, Gertrude, H. and Griffiths, Nellie L., Metropolitan Readiness Tests. New York: World Book Company, 1939, (Manual, p. 5).

> The advantages of such tests over casual observation of young children are numerous. The test is objective and presents a uniform situation to a group of children at once. The resulting data are comparable from child to child. The test can be administered to a group of children at one time. It furnishes an immediate basis for acquaintance with the child.
>
> The scored test provides in itself a permanent objective record of the individual's actual responses, which often proves invaluable in later studies of problem cases. Such records can constitute the beginning of permanent cumulative studies of individual pupils. The material becomes more valuable when interpreted in the light of other evidence concerning the child's maturity and prospects of satisfactory school adjustment.
>
> The test results must always be considered tentative only. Even though the tests indicate possibilities of a high degree of success in first-grade learning on the part of a child, he may fail to make satisfactory progress because he is too young in comparison with the group; or the methods of teaching may be ill-adapted to the most successful learning of capable children; or he may develop antagonism toward school work; or protracted absence from school may lessen his opportunity for experience and practice in different aspects of first-grade work. The child who has been over-indulged at home, even though he is mature in the things the test measures, may be unsuccessful on that account with first-grade learning. Bright foreign children may make low scores unless they are tested in their native language. Success will depend, in addition to the factors named above, on the type of curriculum, the morale of the group, and the length of the school day.

In the Tulsa plan these tests are the criterion that is expected to predict the more academic phases of the pupil's performance, because of the extent to which they partake of the skills that underlie them.

The following results of research regarding readiness tests will assist in interpretation here. Dean[25] found an answer to the question, "To what extent can reading readiness tests be depended upon to point out the probable successes and failures in beginning reading?" a correlation of .59 ± .03 between scores on the Metropolitan reading readiness tests and achievement in reading, and a correlation of .41 ± .04 between scores on the Monroe reading aptitude tests and reading achievement.

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[25]Dean, op. cit.

Lee and Clark and Lee[26] in writing on reading readiness tests findings report:

> All first grade teachers need to know which pupils are ready to read when they enter the grade. The first grade is the crucial point in the child's education and no one knows the amount of damage to mental health and personality development caused by the improper handling of pupils at this point.

They believe that it is much more satisfactory to explain to parents a placement in a junior primary, pre-primer, or a transition group than it is to explain a failure. They warn, however, that

> Much caution should be used in interpreting the results from an aptitude test, such as a reading readiness test. There are many factors which differ in every situation and it is difficult to make any statements which will hold in all cases.

They found a critical score on their readiness tests above which pupils are ready to learn to read but state that a low score does not necessarily mean that a pupil is not ready. They recommend division of first year entrants into two classes where the school enrollment is large enough. Where the pupils are all classified in one room they advise grouping into a ready-to-read group, a doubtful group, and a not-ready-to-read group.

Gates[27] reports that satisfactory prediction of reading ability may be made during the second or third week of school. He says:

> The predictive value of a particular test varies with the teaching method. The better a teacher adjusts her work to a pupil's special abilities as revealed by the readiness tests the better the prediction made by the tests. A

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[26]J. Murray Lee, Willis W. Clark and Dorris May Lee, "Measuring Readiness," Elementary School Journal, Vol. XXXIV (May, 1934), pp. 656-666.

[27]Arthur I. Gates, "An Experimental Evaluation of Reading Readiness Tests," Elementary School Journal, Vol. XXXIX (March, 1939), pp. 497-508.

> teacher will profit most from reading readiness tests if she concerns herself with a pupil's status in each test and arranges her later work to conform to it. This is not a denial of the value of a "total score." It is an assertion, however, that when only the total score is considered, much, if not most, of the information of value for the guidance of the pupil is lost.

Gates' readiness tests include the following types:

Picture Interpretation Test
Word-Matching Test
Word-card Recognition Test
Rhyming Test
Blending Test
Alphabet Test
Sounding Letters Test

The Subjective Criterion as a Factor in Determining Readiness to Read. Subjective evaluations have been given more or less attention in the placement of pupils for instruction in reading. Lee, Clark and Lee found that teachers' rating did not predict reading success as well as did the results of their reading readiness tests, but they feel that it has a valuable place in judging a child's ability.[28]

Witty and Kopel say:[29]

> Readiness for reading depends partly upon maturity in two phases of growth, the emotional and the social, which are reflected in the child's independence of action and in his relationships with other people. To engage successfully in reading, the child must learn to work co-operatively with other children, to follow directions, and to listen to group conversation as well as participate in it. He must be able to attend rather closely for varying periods of time to the instructional activity. He should be persistent, resourceful, and courageous in meeting new or difficult problems and it is important that he engage in learning situations not with fear or anxiety but with self-confidence and a feeling of security. Vital contributions to the development of these abilities and attributes are made by stable home environments and by the better nursery schools and kindergartens. The child who lacks these advantages and who is

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[28]Lee, Clark, and Lee, op. cit.

[29]Paul Witty and David Kopel, Reading and the Educative Process, p. 184.

socially or emotionally immature must be given time and opportunity in the first grade to grow in these areas before he is confronted with predominantly abstract intellectual problems.

Origin and Description of the Tulsa Plan

Early in 1936, a special committee was appointed in the Tulsa schools for the purpose of constructing an adequate program of instruction for a reading readiness group of pupils. This committee was delegated with the responsibilities of: (1) determining the causes of the problem; and (2) submitting tentative instructional material designed to meet the wide range of capacities and needs of these children.

The committee sensed the foregoing classification problems and saw the necessity of eliminating the practices of admitting children into the first grade in the Tulsa schools, without consideration for their readiness to pursue the course of instruction prescribed, since[30]

1. One out of every 4 or 5 pupils met with discouragement of failure;

2. Pupils not successful in getting a proper start in their school experience became potential problem children later in their school career;

3. The high percentage of failures seemed to indicate that the educational program of the schools was not properly adjusted to meet the needs of all first grade entrants;

4. Instructional costs were increased by pupil failures in the first grades or in subsequent grades.

In a bulletin to members of the elementary education staff in April, 1936, a summary was made of procedures that had been observed

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[30]Committee on Elementary Education, Curriculum Bulletin, Tulsa Public Schools, 1936.

in the Tulsa schools in an attempt to meet the conditions outlined above. The following paragraph is quoted from this bulletin:

> An attempt to correct these conditions has been made through the adoption of a policy of not retaining pupils who failed to do first grade work successfully. The theory advanced in support of this policy was that, if these pupils were given a longer time in which to adjust to the curriculum, the number of failures would be reduced. The adoption of this policy has now created the following problems: (1) Pupils who were prepared to do first grade work successfully were hampered in their progress because of being classified with pupils who were not adequately prepared. (2) Pupils who were partially prepared were pushed too rapidly for effective learning. (3) Pupils who were not prepared met with discouragement and failure and were exposed to conditions conducive to the development of a negativistic tendency toward all school instruction. (4) Pupils who had been in school one year, but who were not ready to do second grade work successfully, were either advanced to the second grade or were required to repeat the first grade. (5) Pupils not successful in acquiring an adequate command of first grade work, but permitted to advance to higher grade levels, created many cases of retardation in achievement even though they did not appear to be retarded in classification.

In brief, the administrators of the primary program felt that the adoption of the policy just described failed because the solution did not adequately deal with the true causes of the difficulty. It is possible that the real causes lay in the wide variability in the mental capacities and experiential backgrounds of first grade entrants, and in their wide variation in readiness for successful achievement in first grade reading.

Problems one and two, as given by Beall and Holmes,[31] on page nine of this study, have to do with the education of parents and occasionally of teachers and administrators. The Tulsa plan attempts to inform parents as to the aims of the readiness curriculum by early

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[31]Beall and Holmes, op. cit., p. 255.

meetings with patrons at the school in which the program of the pre-primary is described and explained. Here the facts are presented in the hope that parents may be brought to see that it is for the welfare of their child that the foundation of reading be well laid before the task is attempted.

The problem of a modified program of instruction is met by the curriculum of the primary grades offering a block of instructional material definitely designed to provide the reading readiness experiences that seem to be lacking. The program continues the following instructional jobs which were started in the kindergarten in preparing children for the experience of learning to read:[32]

1. Providing the child with real, varied and rich experiences, out of which concepts grow, essential to the getting meaning from material read.

2. Training in the ability to solve one's way through a problematic situation

3. Training in the use of oral language
   a. Development of a wide spoken vocabulary
   b. Practice in using simple English sentences
   c. Training in use of accurate enunciation and pronunciation

4. Developing a desire to learn to read

5. Training in keeping a series of ideas in mind and in their proper sequence

6. Training in auditory and visual discrimination

The classification problem is attempted by an analysis of the test results obtained from the kindergarten and the initial tests given at the opening of the formal primary work for the pre-primary

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[32]Tulsa Public Schools, A Course of Study for Kindergarten and Grades One, Two, Three, Tulsa Public Schools, Tulsa, Oklahoma (1938), p. 4.

and the first grade. All children are admitted to the "primary" and thus classified until the test data on all pupils are interpreted. The kindergarten data include a pupil rating chart for readiness to read which has been checked by the kindergarten teacher and gives her opinion of the probable success of the individual pupil in first year reading. The chart is shown in Plate I. This chart plus the opinion of the primary teacher gained during the first six or seven weeks of school constitutes the teacher rating for the child's classification. This delay does not inconvenience the administration of reporting pupil classification and progress since in the Tulsa system parents receive reports every nine weeks.

With all of the data thus obtained, a decision is made placing the pupil either in the first grade, or in the pre-primary. The pre-primary pupils receive the modified program of instruction designed to supply the readiness experiences they lack and to enrich their general background. Pupils may not remain for a whole year in this classification with the reading readiness group; any, who by December 1 shows strength enough to justify his receiving regular first grade instruction is placed in the first grade. However, those who seem to require it, continue in pre-primary for one year, going into first grade at the beginning of the next term.

Plate II[33] gives a diagram indicating progress from kindergarten through pre-primary and first grade in the Tulsa system.

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[33]Tulsa Public Schools, Curriculum Bulletin for Kindergarten and Grades One, Two, and Three, Tulsa Public Schools, Tulsa Oklahoma (1938), Plate I.

READING READINESS CHECK SHEET

Pupil's name	Birth Mo.Da.Yr.	Intelligence Test Test C.A.	M.A.	I.Q.	Date	Read.R. Score	Sept.1, 19__ M.A.	C.A.	Teach.Est Group 1 2 3 4

1. Many correct concepts of common things, gained through wide and varied experiences.....
2. Good physical condition.....
3. Strong interest in reading and desire to read....
4. Evidence of clear thinking, use of judgment, gained through practice in solving many simple problems related to their experience.....
5. Recognition of reading situations:
   (a) Curiosity as to signs, advertisements, labels in and out of school, and at home.....
   (b) Looking at picture books with interest; curiosity as to names and stories.....
   (c) Bringing books to school to be read and shown.....
   (d) Association of word and action, with object, with picture, with music..... Association of certain rhymes, stories, or words with pictures of places in books.....
6. Some ability to recognize and distinguish form...
7. Ability to cooperate with group, to show courtesy, and to carry responsibility.....
8. Ability to express and communicate ideas orally; possession of good speaking vocabulary.....
9. Ability to comprehend oral expressions and communications from others.....
10. Ability to listen attentively while rhymes and stories are told.....
11. Ability to follow line of thought.....
12. Ability to repeat rhymes or brief messages correctly.....
13. Ability to follow directions.....
14. Ability to recall experiences.....
15. Ability to anticipate what comes next in a story.....
16. Ability to supply missing words or part in familiar rhymes or stories.....
17. Ability to reproduce very short stories or parts of stories. Desire to tell stories.....
18. Ability and desire to dramatize simple stories; to act out their meaning.....
19. Ability to classify pictures or other objects in making booklets or carrying on other concrete activities.....
20. Ability to recognize own name, to tell meaning of common signs, names of streets, notices, such as "Danger," "Cars Stop Here," etc.....
21. Clear enunciation and pronunciation.....
22. Ability to keep a series of ideas in mind in their proper sequence.....

PLATE I

DIAGRAM INDICATING PROGRESS FROM KINDERGARTEN

THROUGH PRE-PRIMARY AND FIRST GRADE

OTHER READERS

UNIT

FIRST READERS

PRIMERS

BASAL READERS
ONLY
(no units)

PRE-PRIMERS

PREPARATORY	PREPARATORY	Time Up to One Year (Pre-Primary)
	Tulsa Non-reading Material	
4 to 6 weeks	Time Indefinite	
(1)	(2)	
Candidates for 1st grade	Candidates for 1st grade	

KINDERGARTEN

PLATE II

In the beginning of its work, this committee started the collection of data on approximately 1,300 first grade entrants in the Tulsa schools in 1936. The following material is quoted from a report of the Committee's work:[34]

> The present program for the identification of mature and immature first-year entrants in Tulsa makes use of four specific factors, namely chronological age, mental age, intelligence quotient, and the score on a reading-readiness test. In addition to these data, the teacher's judgment with respect to the child's readiness for systematic reading instruction is taken into consideration. This program, which has been followed for the past six years with only minor changes in the tests used, is reviewed briefly in the following paragraphs:
>
> 1. Approximately 60 per cent of the first-year pupils have been tested by the Stanford-Binet Intelligence Test during the last semester of kindergarten.
>
> 2. Those first-graders who have not attended kindergarten are tested at the beginning of school in the fall with the Detroit-First Grade Intelligence Test.
>
> 3. All first-year entrants are given the Metropolitan Readiness Test.
>
> 4. In case of grave doubt or violent disagreement with respect to the test results for a child, a second or even a third (and different) test of intelligence or readiness is given.
>
> 5. In light of the data thus obtained, teachers are instructed to classify first-year entrants as pre-first-grade or regular first-grade pupils, except in cases of extreme deviation. In such cases, the children are classified as kindergarten pupils or as "specials," depending upon the nature of the case. While making decisions with respect to the classification of a pupil, the teacher is expected to supplement the test results with her judgment of the pupil's readiness or lack of readiness for systematic instruction in reading. That is, the pupil is not arbitrarily classified on the basis of the test data alone, but on the basis of the test data and the teacher's judgment of his readiness for beginning reading. A definite weakness in the present

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[34]Beall and Holmes, op. cit., pp. 256-257.

program is the lack of a means for guiding the teacher's judgment. The plan for the future is to correct this deficiency through the development of a pupil-rating chart which will help to guide the teacher's judgment when she attempts to classify pupils.

Experience has shown that the chronological age and the intelligence quotient are helpful in distinguishing mature and immature first-year entrants only when considered in relation to each other. In other words, the child's mental age is more significant than either his chronological age or his I. Q. alone. This conclusion has been confirmed by other investigators. For example, Morphett and Washburne obtained correlation coefficients of .50 to .65 between mental age and ability to learn to read, and found this relationship to be higher than that between reading progress and either the intelligence quotient or the average of mental and chronological ages. Harrison reported that, although an adequate mental age does not insure reading success, a mental age of at least six years seems necessary to make success probable, and that the probability of success is greatly increased if a mental age of six years and six months has been attained.

Wright, in studying the relation of mental age at school entrance and teachers' marks in reading after one semester of instruction, found that 50 per cent of the children with mental ages of 72 months or less received failing marks, while only about 2 per cent of those with mental ages of 78 months or more received such marks. Woods recommended that children with mental ages between 76 and 80 months be considered as border-line cases, pointing out that, while many of them are mentally ready to begin reading, some are still too immature because of other factors. Such findings as these indicate that mental age is one of the crucial factors in determining a child's readiness for reading, but that, like chronological age and I. Q., it has limitations if used alone as a measure of readiness.

The use of the Metropolitan Readiness Test may be criticized because it measures many of the same factors that are measured by intelligence tests. Harrison reported a correlation of .79 between scores on this readiness test and the average of mental ages obtained from three primary intelligence tests. Nevertheless, the test does provide a verification of the mental-test data and also a broader base from which conclusions may be drawn as to the child's readiness for reading. It is longer than primary intelligence tests and gives more detailed information about abilities closely related to pupil activities in the first grade. Wright found the

best means of predicting success in reading to be a combination of scores on the Metropolitan Reading Test and teachers' judgments on a pupil-rating scale.

To throw further light on the value of the readiness-testing program in Tulsa, the test results for first-year entrants in the fall of 1936 were compared with the reading achievement of the same pupils in May, 1937. The measure of reading achievement used was the Tulsa Reading Progress Test No. 2. In this test, constructed by the director of tests for the city school system, the entire vocabulary was selected from the basic textbooks in reading for the first grade. The test consists of 100 items, arranged in the order in which the words are presented in the basic textbooks; that is, the words that occur in the pre-primer are used first; the new words that appear in the primer then follow; and the new words in the first reader make up the balance of the test. The items are arranged in six different types of reading exercises, namely, visual-visual association, identification of a word with the corresponding picture or object, auditory-visual association, and three types of comprehension exercises. The reliability coefficient of the test was found to be .98 for 700 cases selected at random, which means that the scores were highly reliable.

The results obtained from this test in the spring, together with the data on readiness factors obtained in the preceding fall, were tabulated. These data are based upon a sampling of 1,325 children, or approximately 50 per cent of the first-year entrants enrolled. This sample is believed to be reasonably representative of the entire group. No attempt was made to trace the records of pupils who had moved during the school year; consequently, the data are for pupils who remained in the same school throughout the year. It is important also to note that the group included white children only and that not more than 2 per cent of those were foreign children. The mean intelligence quotient of 105.2 may prompt a question in regard to the representativeness of the sample, but this mean is not excessive for the Tulsa public schools.

The article just quoted at length describes the Tulsa plan and the set-up from which the data used in this study were secured. An evaluation of the plan is sought by observing the progress of the pupils making up the respective experimental groups to determine their achievement during the three or four years of school experiences which began in September, 1936 and carried the pupils of

each group through the third grade. Answers to the following questions are sought:

How effectively does the Tulsa plan meet the problem of the immature entrant by providing experiences that attempt to train in the abilities underlying learning to read?

Does the public school need to provide for readiness experiences to supplement those furnished by the general environment and by the kindergarten?

Using the criteria employed for placement, how effective is that placement?

What implications for the improvement of elementary education grow out of the findings?

CHAPTER II

THE PROBLEM

The Purpose of the Study

This study attempts to show the results of the classification of first year entrants to the Tulsa public schools. Classification is made on the basis of certain measures designed to predict whether the pupil possesses the ability to meet successfully the requirements of first grade reading instruction. It is expected that the results from these data will show the effectiveness of the criteria employed.

The Tulsa plan of primary classification makes use of the following criteria; chronological age, mental age, intelligence quotient, and the Metropolitan Readiness Tests score. These data determine the initial status of the individuals making up the groups. These factors form the bases upon which placement is recommended and in most cases effected. These data are, however, supplemented by teachers' rating and judgment with respect to the individual child's readiness for systematic reading instruction. This rating may determine placement over unfavorable test results. Then again, it is possible for parental demands to secure first grade placement in the face of all evidence and opinion that the pupil is not ready to succeed in reading instruction. How often this was done is not known but it is felt that this case is rare, since the school is generally able to convince the parent of the advantage of readiness instruction for the immature pupil. To the extent that this did operate, it would tend to invalidate the results from the recommended criteria.

How the Data Were Secured

For Tulsa pupils, birth certificate records, required on first enrollment, establish chronological ages. The mental ages and intelligence quotients are secured from the administration of the Stanford-Binet[1] intelligence test during the last semester of kindergarten. For the first year entrants who missed kindergarten or for some other reason did not receive the individual intelligence test, the Detroit First Grade Intelligence Test[2] is administered at the beginning of the term. The results from this group test of intelligence have proved quite satisfactory.

A measure of the reading readiness status of each entrant is secured at the first of the term by the administration of the Metropolitan Readiness Tests.[3]

The Metropolitan Reading Readiness Tests give a measure of the ability to meet the "learning to read" situation. It is a group battery that may be given to as many as fifteen children at one time. Given at the beginning of the first grade, it measures the extent to which certain factors underlying the ability to learn to read are possessed by the individual pupil. Tests one

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[1]Lewis M. Terman and Maud A. Merrill, Revised Stanford-Binet Intelligence Scale (Houghton Mifflin Company, Boston, 1937).

[2]Anna M. Engel and Harry J. Baker, Detroit Beginning First-Grade Intelligence Test.

[3]Gertrude H. Hildreth and Nellie L. Griffiths, Metropolitan Readiness Tests.

and two of this group measure certain visual factors. Test one matches similarities. Test two presents copying simple figures, letters, and numbers. Test three is a vocabulary test; test four, a sentence test; test five, number knowledge; and test six, general information. The Manual states:[4]

> The Metropolitan Readiness Tests have been devised to determine the extent to which pupils are ready to learn first grade skills and provide an analysis of the difficulties revealed. Intelligent analysis, interpretation, and application of the results of the tests on the parts of teachers and supervisors should facilitate the learning process at the first grade level and should reduce failures appreciably. This test differs from group intelligence tests chiefly in the nature and purpose of the content and arrangement of the material. There is actually a marked correlation between scores of pupils on the two types of tests. A correlation of .70 was obtained between the test scores and the Detroit First Grade Intelligence Test scores for thirty-four cases. A correlation of .53 was obtained for ninety-four cases between the scores on this test and the Pintner-Cunningham Primary Mental Test.

Harrison has the following to say about these tests:[5]

> The group of tests is carefully selected and standardized and norms are furnished which allow for a detailed analysis of each child's abilities. The age of the child has been taken into consideration in deriving norms, which makes results more meaningful. A point score and a percentile rank according to total score and age are given. The tests are interesting to children, for they like the pictures and consider the whole procedure a game.
>
> In the opinion of the writer it would have been well if norms had been established in terms of percentile ranks for the five tests most closely related to reading, not including the number test. It seems advisable that these two readinesses be investigated separately. Of course, there are percentile rank norms for each individual test and for the total of tests, but not for the total most closely related to reading.

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[4] Ibid.

[5] M. Lucile Harrison, op. cit., p. 80.

The above data showing the initial status of each pupil in the experiment were secured from the records on file in the office of the Department of Tests and Measurements. The chronological ages were taken as of September, 1936, and the mental ages were computed as of that date.

The element in the predictive criteria that includes subjective evaluation is the rating check sheet (Chapter I, page 23 of this study) of the kindergarten teacher and the opinion of the primary teacher and the school principal as formed during the first weeks of school in the fall. Thus, after all the objective criteria have been interpreted, these results are supplemented by the facts that grow out of the personal equation of teacher and pupil. The extent of the influence of the factor of teacher rating cannot be determined here since no record is made of this rating or of its influence in affecting the placement of the individual pupil. This is unfortunate, both from the standpoint of evaluation and of standardization of method and procedure. It is evident in the Tulsa plan that this rating factor often sets aside other criteria or is effective in modifying their effect.

How the Groups Were Constituted and the Measurements Taken

Entrants who were admitted to regular first grade classification constitute Group I of this study, and number 536. Those who seemed unable to meet successfully the work of beginning reading, and for whom the program in reading readiness experiences seemed

advisable, were classified as the pre-primary. Complete data for 118 of the pre-primary were secured for this study. These compose Group II. At the time the experiment was started a sampling of approximately one-half of some 2100 entrants in September, 1936, was included. This sampling was made by taking the alphabetized list of entrants for each of the elementary schools in the school system and going through the initial letter "M" for surnames in the list for each school. This gave approximately 50 per cent of all first-year entrants in all parts of the city, and was considered sufficient to give meaningful results for the study, even though the number of eliminations would be quite great by the close of the four-year period. Approximately 1200 pupils started in the experiment. Eliminations were caused in the following ways: first, if a child missed any test subsequent to the administration of the Metropolitan Readiness Test in the fall of 1936 he was dropped; second, if a child moved from the building in which he was originally entered, he was eliminated from the experiment on the theory that since accomplishment in reading was to be measured, it was desirable that a child not have the handicap of moving from one building to another, thus changing his school environment during the course of the study.

In the light of the recommended criteria most of the first-year entrants were classified. As these completed their first year elementary school experience, in May, 1937, they were tested by the administration of the Tulsa Reading Progress Test No. 2 described on page 27 of this study. This test was devised and standardized

by the Department of Tests and Measurements of the Tulsa Public Schools. It was based on the curriculum used, the entire vocabulary of the test being selected from the basic text books that were in use in the primary reading program. The reliability coefficient of the test is .98 for 700 cases selected at random. It was constructed to meet more fully the diagnostic features of a first grade and pre-primary test. In this respect it seemed more satisfactory than the Gates Primary Reading Tests on word recognition and sentence reading, which had been used up to this time. Chapter III shows the results obtained, presents tables of comparison, and sets forth the interpretation. At this time the regular first grade entrants were completing the work of the first grade, while the pre-primary (the reading readiness experience group) entrants were finishing the term of pre-reading experience designed to develop ability to attack successfully the task of first grade reading.

Therefore, Group I (536 pupils) was entering second grade in the fall of 1937, while Group II (118 pupils) of this study (the pre-primary group) was at the same date entering upon the work of the regular first grade.

In May, 1938, Group No. II finished the work of the first grade and its status is measured by the Tulsa Reading Progress Test. Chapter III also compares the results of this test with the results shown from its administration to the regular first grade group at the close of the previous term in May, 1937.

That the test was in the process of revision, presented some difficulty in making direct comparisons. The form taken by the pre-primary when it finished first grade experience is not directly comparable with that taken by the regular first grade group. However, comparable rankings have been made in Table VII. Chapter III shows that the pre-primary group tended to approach the norms of the form administered to it while the performance of Group I exceeded the norms for the form by which it was measured.

In May, 1938, the regular first grade entrants of September, 1936, completed the work of the second grade and were given the Gates Primary Reading Test, consisting of Type I, Word Recognition, Type II, Sentence Reading, and Type III, Paragraph Reading.[6] These tests are diagnostic and measure the phases of reading ability indicated. Three equivalent forms of the test are available. Gates states that the reliability of the tests is primarily determined by the skill of the examiner in following the directions specifically. Norms have been established on a great number of cases drawn from all parts of the country.

The composite of the scores on these tests was employed to obtain a reading grade score for this study. The statistical treatment of the results of these tests is given in Chapter III as is also the results obtained by the administration of these tests to the pre-primary group, which finished the work of the second grade one year later in May, 1939. Comparison of the work of these two second grades is made following the presentation of the data.

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[6]Arthur I. Gates, Gates Primary Reading Test, Bureau of Publications, Teachers College, Columbia University, New York, 1935.

In the fall of 1938 the regular first graders of the fall of 1936 began the work of the third grade, and in May, 1939, on its completion were tested by the administration of the Gates Silent Reading Tests.[7] There are four tests in this battery: Type A, Reading to Appreciate General Significance; Type B, Reading to Predict the Outcome of Given Events; Type C, Reading to Understand Precise Directions; Type D, Reading to Note Details. Three forms are available. Type C is omitted in administering the tests in Tulsa on account of its partaking of the diagnostic elements of Type D.

In an evaluation of these tests Joseph C. Dewey, Head of the Department of Education and Psychology, Westminister College, says,[8]

> These tests consist of four different types each designed to measure one specific reading skill. Each type test contains three forms called equivalent by the author but no evidence is submitted to show that this is true. An excellent manual provides clear and careful directions for using the tests for individual and group diagnosis. Regular age and grade norms are provided as well as those for the lower and upper quartiles. The manual provides the answers to the various tests but no actual answer keys seem to be provided.

The composite grade score from these tests was obtained for this study. The pre-primary group of the fall of 1936 completed the work of the third grade one year later than the regular first grade completed it, or in May, 1940, and at that time received the Gates Silent Reading Tests. The statistical treatment of the results of the administration of these tests is given in Chapter

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[7]Arthur I. Gates, Gates Silent Reading Tests, Bureau of Publications, Teachers College, Columbia University, New York, 1935.

[8]Oscar Krisen Buros, Editor, Mental Measurements Year Book, p. 1538, 1941.

III of this study and the results shown by each group at the close of third grade experience are compared.

CHAPTER III

COMPARISON OF GROUP I AND GROUP II IN STATUS AND ACHIEVEMENT

Defining the Groups

From the results of test data and the rating of teachers the first year entrants in 1936 were classified as regular first grade or pre-primary. The first grade was then made up of pupils who appeared to possess readiness to attack the problem of beginning reading successfully. This study presents the performance of 536 from this group, and they are here designated as Group No. I. The pre-primary group was made up of students who from the criteria applied seemed too weak in readiness techniques to advance successfully with the work of the first grade. They were therefore classified in a reading readiness group, and a curriculum designed to build reading readiness techniques given them. One hundred eighteen from this group are considered in this study and are designated Group No. II.

The Different Curricula

The curriculum devised for instruction in reading readiness was made up of materials produced by the pre-primary committee. This committee worked in accordance with the plan of the elementary education committee mentioned in Chapter I. At first the committee presented a workbook made up of two sections. Series A was designed to meet the needs of the pupils entering the elementary school lacking in those elements of readiness that precede the taking up the task of learning to read. These work sheets were designed to develop

ability in recognizing, naming, and using color; differentiating simple forms; acquiring number concepts of quantity and serial presentation; learning to count through thirteen and to recognize numerals; ability in cutting to line, in pasting, and arranging in order; acquiring simple skill in matching colors, forms, and numbers; and ability in following directions and executing specific tasks. Exercises were given in developing habits of attention and habits of orientation in left to right direction across the page. Here, also, instruction is given in handling of books, scissors, and crayons, attempting to develop habits of neatness and respect for property. The second part of this workbook was designed specifically to aid in the development of perceptual discrimination generally considered an essential prerequisite to reading. Dolch defines it as the ability to distinguish slightly different objects from one another, especially slightly different word forms.[1] It is based on the psychological theory that retinal impressions are grouped as wholes and that the development of perception involves three steps: (1) an undifferentiated whole; (2) the differentiation of parts; and (3) an integrated pattern.[2] The exercises are graded from those which require gross discrimination to those which require a finer discrimination necessary for noticing similarities and differences in letters and words. The series of exercises aims to (1) provide for the gradual development of this perceptual discriminative power and (2) to provide the teacher with

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[1]Edward William Dolch, Teaching Primary Reading, p. 40.

[2]R. H. Wheeler and F. T. Perkins, Principles of Mental Development, pp. 130-132.

a sort of detail scale or test to determine the degree of this power attained by each child as a factor in readiness to read.

In addition to Series A, there was designed a Series B set of materials which introduces the child to a simple program in beginning reading. It was used at the completion of the Series A workbook. The Series B material is composed of four themes or units. The titles are: Unit I, "Fun;" Unit 2, "The Home;" Unit 3, "Pets;" Unit 4, "Rides." These units provide material to be used following the Series A Workbook which give the child experience in simple reading. The themes are planned to aid in the development of an activity program.. Fun was chosen as a theme for the first activity since action words are considered as meaningful to the child. Emphasis is placed on the development of an oral vocabulary. The children are encouraged to discuss what the figures on the separate sheets in the workbook are doing. They are directed to notice the different actions represented by each figure and to associate the action with the word or phrase below the picture. Drill in matching words is given and the ability to note detail is exercised by cutting out and matching of words and phrases with the proper pictures. Color concepts are taught at the same time by encouraging children to use different colors on the figures included in the workbook. This same procedure is followed through the other three workbooks. When the child is ready for the fourth unit, Rides, he is introduced to simple sentences which, through discussion and observation, he learns to associate with different parts of a single picture.

In addition to these materials the curriculum suggests means for extending the child's experiential background, for promoting the child's social adjustments, for cultivating health habits and for correcting faulty speech habits. This beginning in 1936 of a curriculum for the pre-primary has resulted in its becoming a part of the regular primary course of study. The course of study states that the aim of this year of reading readiness experience is[3]

> 1. To develop an enriched and meaningful vocabulary. This implies the development of fundamental concepts essential to comprehension. During this time habits of perception with respect to similarities and differences will be formed. Then, too, the orientation in the perception of number with respect to objects in the immediate environment will be secured. It is expected that all this will result in a reasonable facility in use of language in the expression of ideas.
>
> 2. Conscious provision is made for a wide variety of educational experiences. These experiences make for growth in ability to listen while directions are given, to use correct pronunciation and enunciation, and to practice listening to comprehend what is being read. Emphasis is also placed on the development of desirable social relationships by providing activities which promote respect for the rights and properties of others, control of the emotions, and development of desirable personal habits. Muscular coordination is increased through written exercises and the manipulation involved in handling objects, art materials, playground equipment, and in looking after one's personal belongings such as wraps and school materials.
>
> 3. The latter part of the year is employed in developing the ability to read simple sentences, in stimulating the desire to read, and in securing growth in the ability to read and comprehend pre-primer and primer materials.

In the pre-primary every effort should be made to enlarge the concepts possessed by the child. In this connection it is important

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[3]Tulsa Public Schools, A Course of Study for Kindergarten and Grades One, Two, Three, Tulsa Public Schools, Tulsa, Oklahoma (1938), pp. 119-120.

that the teacher know the child and prepare him for the reading of any story by supplementing his own background with any concept that he does not possess. This will enlarge his speaking vocabulary and lay the foundation begun in kindergarten by providing opportunity for auditory and visual discriminations. The following activities involving auditory discrimination are suggested:

1. Hearing and enjoying rhymes and jingles (Mother Goose)

2. Giving words that rhyme or supplying rhymes at the end of lines.

3. Playing games in which the child closes his eyes and tries to recognize the voices of other children in the game.

4. Listening then relating sound heard.

Following are some of the ways suggested for the developing of a sight vocabulary:

1. By associating words with accompanying pictures

2. By placing on the board words suggested by the child

3. By labeling objects in the room

4. By naming actions

5. By presenting familiar words of the home

6. By presenting familiar words of the school

The regular course of study then suggests outline procedures for developing the themes "Living in the School," "Living in the Home," "Living in the Community," and "Out of Doors." These are pursued for the purpose of developing the child's background in connection with increasing his interest in reading. The course of study provides references to many pre-primers and primary books.

The foregoing from the revised course of study for Kindergarten, and Grades 1, 2, and 3 suggests the experiences that are provided for the reading-readiness group, on the theory that it is advantageous to place the pre-primary pupil in a readiness situation for the following reasons:

1. The immediate and specific needs of the group can be met in a more adequate way.

2. The pupils have a chance to succeed and experience leadership on their level and are not forced into competition that they cannot meet.

3. The experience of failing is not forced upon them either gradually or at the end of the year.

4. The regular first grade is not retarded by the teacher having to take undue time out for the slow pupils.

5. The philosophy of the Tulsa public schools holds that the closest possible understanding and co-operation is to be maintained with the parents. This establishing of an understanding on the part of parents is attempted in the fall by meetings with all parents of the new entrants then later with the parents of the pre-primary group; and then as occasion needs, conferences with individual parents are held. Much depends on the alertness and persistence of the teacher and the principal in realizing the benefits from parent co-operation. In the main parents accept the plan as best for the welfare of the child, though this acceptance is often more or less passive and not well understood.

Contrasted to the above curricular offerings for the pre-primary or reading readiness group, the regular first grade group begins with experience stories as a basis for first grade reading. Here again are developed the themes "Living in the School," "Living in the Home," "Living in the Community," and "Out of Doors," but these are developed on a broader basis and a far wider selection of texts including primers and first readers. In addition to the foregoing, themes on "Stories We Like," and "Special Days" are developed.

The following discussion concerning oral and silent reading is given in the course of study:[4]

> While there is some difference in opinion as to the relative emphasis that should be placed upon silent and oral reading in the initial period of instruction, it is generally agreed that there should be about the same amount of each type during the child's first year in a reading group.
>
> There is a very close relationship between oral language and learning to read. When children enter the first grade, most of them have rather large speaking vocabularies, which contribute toward the development of much of the interesting reading material.
>
> When reading these short experience stories, the content of which has been contributed by individuals in the group, each child whose sentence appears in the story is eager to read to the others the part belonging to him.
>
> Soon, by thinking through the sentences, the child will be able to read the whole story. This gives him a feeling of satisfaction. Even though early reading is largely oral, children are encouraged to read silently by following the pointer which is placed under the sentence and moved from left to right. This procedure provides preparation for the oral reading, and aids in preventing excessive lip movement and vocalization.

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[4]Tulsa Public Schools, op. cit., pp. 4-23.

In this period of teaching, the effectiveness of the instruction can best be evaluated by having the children read aloud. The necessity for much oral reading in the first grade lies in the fact that it aids in the child's association of meanings with printed word symbols.

Improvement in the childrens' oral reading in an audience situation may be brought about by having the teacher or older children read to them. These stories should be of such interest to the listeners that they will have a desire to read well to others.

When the child's sight vocabulary has gradually increased until it is such that he can read silently material he has not read or had read to him, the child may, after an introduction to the story, be asked to read a sentence to find some specific fact. Later, he may be asked to read a short story or a part of a story in order to tell the other children what he has read.

Often comprehension may be checked by reading aloud that part of the selection which answers a question. This combines the use of silent and oral reading. Dramatization is one method by which children like to interpret selections read.

Suggested ways of utilizing silent and oral reading may be found in the first grade problem Beginning Book Reading. In the first grade, there should be much reading of recreatory material. This should consist of easy, well-written stories which are attractively illustrated. Children should acquire not only the ability to read, but a desire to use that ability.

Comparison of the Initial Status of the Groups

Chronological Ages. Table I compares in frequency distribution the pupils of the two groups on the basis of chronological age. Group I shows a slightly greater range than Group II, ranging from 57 months to 108 months. The range for Group II is from 67 months to 108 months. The mean chronological age of Group I is 76.62 months while that of Group II is 75.04 months. The sigma of chronological ages for Group I is 6.08 and that for Group II, 5.99.

The difference in the means of the two groups in chronological age is 1.58 months. This is small, but it is a statistically significant difference when groups as large as these are compared. The critical ratio of the difference is 2.6, which is not highly significant, and it indicates here that the difference is too small for any practical use in making placement in pupil classification. This is in keeping with findings generally, that chronological age apart from mental age is a poor criterion in the prediction of reading success. Dean[5] found a correlation of .12 ± .06 between chronological age and reading achievement, and Virginia Harrison[6] a correlation of .09 ± .06.

It is necessary to examine the frequency distribution of chronological ages from the standpoint of the extremes as well as for group significance. Table I shows two pupils in Group I who have ages below five and one half years. It seems that these should have represented under-ageness to the extent of being placed in the readiness group and yet they are classified as regular first graders. It may be mentioned here that this would be impossible in the Tulsa public schools unless misrepresentation of age succeeded in getting the children into school. This was one of the things that brought about the requirement of enrollment by birth certificate. The individual data on the two children here included in Group I are as follows.

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[5]Dean, op. cit., p. 614.

[6]Virginia Harrison, "An Evaluation of Chronological Age, Mental Age, Kindergarten Training, and Socio-Economic Status as Factors Underlying Reading Readiness." Unpublished Thesis, University of Tulsa. (1938), p. i, Appendix III.

Table I

Comparison of the Distribution of Pupils of Group I and Group II on the Basis of Chronological Ages

Age in Months	Group I	Group II
105-109	2	1
100-104	3	1
095-099	5	0
090-094	12	1
085-089	27	4
080-084	71	4
075-079	160	35
070-074	213	60
065-069	41	12
060-064	1	0
055-059	1	0
	N 536	N 118
A. M.	76.62 mths	75.04 mths
Sigma	6.08	.599

C. R. 2.6

Pupil 109 in Group I began his elementary school experience with a chronological age of 57 months, a mental age of 64 months, giving him an I. Q. of 112. On the Metropolitan Test in September, 1936, this child made a score of 101 which according to Metropolitan standards is above the third quartile on test standards. At the close of first grade he made a score of 98 on the Tulsa Reading Progress Test No. II. This performance, likewise, is above the third quartile on the test. At the close of second grade he made a grade score of 3.36 which places him above the median of 3.20 of the Gates Primary Test. At the close of third grade he made a grade score of 4.5 on Gates Silent Reading Test which places him above the median of 4.1 for pupils entering the fourth grade.

It would seem that this child's performance on the Metropolitan Test must have been the factor that led him to be considered for first grade, and in considering his performance it appears that this child was very well placed even though his chronological and mental ages were below the standards generally held.

Pupil 235 enters the elementary school with a chronological age of 64 months, a mental age of 78 months, an I. Q. of 122, and a score on the Metropolitan Test of 80, just above the median of 76. On the Tulsa Progress Test at the end of first grade he scores 69 which places him in the second quartile of performance on this test. At the close of second grade experience he makes a grade score of 3.13 which is just slightly below the median of 3.20 for this test, and at the close of third grade he makes a score of 4.0 which is very near the median of 4.1.

This case has made acceptable progress even though he was under-age. It is likely that he would have performed better in reading if he had been somewhat more matured. But it is doubtful if pre-primary would have been a better placement for him.

Likewise, in the consideration of Table I, one would wonder why there are three pupils above a chronological age of seven and one-half years grouped with the pre-primary pupils as is shown by the distribution of Group II. It would appear that these pupils would better be classified with the regular first grade and considered as pupils requiring special individual attention with the group where their advanced life age would be in contact with more advanced performance. The following gives the individual picture of these pupils.

Pupil 2 of this group has a chronological age of 90 months, a mental age of 86 months, an I. Q. of 96, and performs on the Metropolitan Test with a score of 101 which places him above the third quartile in performance on this test. At the close of the first grade he makes a score of 86 which is above the median on the Tulsa Progress Test No. II, and at the close of second grade experience he makes a score of 2.87 which is just slightly above the first quartile point of 2.84 of the Gates Primary Test. At the close of his third grade experience he ranks 3.2 which is below the first quartile point of 3.5 for pupils taking Gates Silent Reading Test on entering fourth grade. The initial performance of the student would make one wonder if he might not have been better classified in Group I on the basis of the placement test results.

Pupil 101 entered the elementary school with a chronological age of eight years and four months, a mental age of 53 months, an I. Q. of 55, and a score on Metropolitan Readiness Test of 56 which ranks below the lower quartile of 60 for this test. This pupil closes his first grade experience with a Tulsa Progress Test score of 17, ranking far below the lower quartile point of 41. He finishes the second grade with a score on Gates Primary Test of 1.43 which is far below the lower quartile point of 2.84 for this test, and finishes third grade experience with a grade score of 3.1 on the Gates Silent Reading Test which is just one year below the median of this test, 4.1.

Pupil 103 of Group II entered school at eight years and eleven months of age. His mental age was 72 months, his I. Q., 67, his performance on the Metropolitan Test was score 49, ranking in the lower quartile. His score on the Tulsa Progress Test at the end of first grade was 31, ranking below the lower quartile point of 41. He finishes second grade with a grade score of 2.10 on the Gates Primary Test which ranks low in the lower quartile, and finishes third grade more than one year retarded with a grade score of 3.0 on the Gates Silent Reading Test.

It seems likely that pupils 101 and 103 would have been better classified with more mature pupils; at any rate, their low potential for performance does not permit classification according to group standards alone, and would not justify the expectation that they might approach the norm.

Mental Ages. Comparison of the Groups in mental age is shown in Table II. The mental age spread of the individuals in Group I shows a larger range than that of Group II. The lowest mental age is 47 months, and the highest is 117 months. Group II possesses a lower limit of 47 months but an upper limit of 92 months. The mean mental age of the 536 pupils in Group I is 83.03 months while the mean mental age of the 118 pupils making up Group II is 71.35 months. The sigma of Group I is 9.51 months and of Group II is 8.69 months. The critical ratio of the difference in the means of these two gouups is 13.2. This difference is termed highly significant by statistical writers.[7] Morphett and Washburne say: "Mental age alone showed a larger degree of correlation with reading progress than did the intelligence quotient or the average of mental and chronological ages."[8] The Los Angeles Plan of arriving at a reading expectancy age finds it advantageous to take an average age arrived at by using the chronological age once and the mental age two times and dividing by three.[9] This, they claim, takes care of the inexperience element of the young child with a high I. Q. and the experience element of the older child possessing a low I. Q.

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[7] R. A. Fisher, Statistical Methods for Research Workers, pp. 128-133.

[8] Morphett and Washburne, op. cit., pp. 502-503.

[9] Los Angeles Curriculum Committee, Curriculum Bulletin, Los Angeles Public Schools, 1938.

The correlation found on the achievement of Group I with mental age is .23 ± .04 using Gates Primary Test at the end of Grade II. Keister[10] found correlations ranging from .20 ± 09 to .37 ± .09 when mental age was correlated with these tests. Deputy[11] in working with 103 first graders found a correlation of .70 (no probable error given) between reading achievement and mental age as measured by the Pintner-Cunningham Primary Intelligence Tests. Virginia Harrison[12] in an experiment employing 120 first graders from two Tulsa Elementary schools found a correlation of .38 ± .053 between mental age and reading achievement. In her experiment the Stanford-Binet Intelligence Test was used. Dean[13] got a much higher correlation of mental age with reading achievement, namely, .62 ± .03, but he used a longer achievement test. In this experiment the mental age and achievement correlation for Group II at the close of second grade experience is .111 ± .09.

At the close of third grade the correlation of mental age with achievement as measured by Gates Silent Reading Test is .34 ± .04 for Group I and .17 ± .09 for Group II.

It appears then that mental age operates as a smaller factor in prediction in the Tulsa plan of classification than it did in the other experiments.

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[10] B. V. Keister, "Reading Skills Acquired by Five-Year-Old Children," Elementary School Journal. Vol. XXXXI (April, 1941) pp. 587-596.

[11] Erley Chester Deputy, "Predicting First Grade Reading Achievement," Teachers College Contributions to Education, No. 426. New York: Teachers College Columbia University, 1930.

[12] Virginia Harrison, op. cit., p. ii, Appendix III.

[13] Dean, op. cit., p. 612.

Table II, the distribution of mental ages, shows the six pupils of Group I who scored lowest in mental age; namely, below sixty months, to be classified in the regular first grade. Since mental age recommendation is so much higher than this, the individual data on these pupils should be studied to find reasons for this placement.

They have chronological ages of 82, 91, and 102 months, respectively, with I. Q.'s of 71, 52, and 57. This low rate of mental maturing would certainly have recommended these pupils for special curricular attention, but it appears that the pre-primary group was not considered best for them, probably because of their advanced chronological age and accompanying physical maturity they were placed with the regular first grade in order that they might be better classified socially. At any rate here are pupils that should have been classified in the situation which offered the greatest opportunity to meet their individual needs. These closed third grade experience in three years with grade scores on the Gates Silent Reading Tests of 3.4, 3.5, and 3.0 respectively. This is satisfactory performance for pupils of this mental age level.

The other three who are under 60 months in mental age and found in Group I are under six years of age; namely, 68, 69, and 70 months, respectively, with I. Q.'s between 75 and 78. Here is under-ageness plus low mentality and factors other than the objective criteria are operating here or these would have been classified in the reading readiness group. They finished the experience of third grade with the following scores, respectively: 4.2, 3.9, and 3.6. The median

Table II

Comparison of the Distribution
of Pupils of Group I and
Group II on the Basis of
Mental Ages

Age in Months	Group I	Group II
115-119	1	0
110-114	1	0
105-109	5	0
100-104	14	0
095-099	35	0
090-094	76	1
085-089	104	6
080-084	117	13
075-079	96	28
070-074	49	16
065-069	19	28
060-064	13	20
055-059	3	2
050-054	2	3
045-049	1	1
	N 536	N 118
A. M.	83.03 mths	71.25 mths
Sigma	9.51	8.59

C. R. 13.2

achievement of people entering fourth grade on the Gates Silent Reading Test is 4.1. It may be said here then that they are achieving at the end of third grade experience up to more than logical expectancy for their mental ages, thus justifying their placement. Cases like these show that classification on group standards often fails to solve the problem of individual placement.

This confirms Gates' contention that even at five years of mental age a child may succeed in learning to read (quote, pp. 12 and 13 this study).

Intelligence Quotients. The comparison on the basis of intelligence quotients is shown by Table III. Here is found an average I. Q. of 110.22 for the regular first grade group and an average I. Q. of 96.48 for the pre-primary group. The sigma of the distribution of intelligence quotients for Group I is 15.04 and of Group II, 13.00. Here the critical ratio is 10.1. While the intelligence quotient is of no value without the consideration of mental age, it indicates the rate of maturity. Thus the pupil with the higher I. Q. may be expected to mature more rapidly, thus reaching adequate mental age at a lower chronological age level.

Table III which shows the distribution of the pupils of Group I and Group II on the basis of intelligence quotients shows 20 with I. Q.'s below 80 to be classified in Group I and eleven at this level of I. Q. to be classified in Group II. The data on individual cases present the following facts. The average chronological age of the group of twenty is seven years, four and one-half months with an

Table III

Comparison of the Distribution of Pupils of Group I and Group II on the Basis of Intelligence Quotients

I. Q.	Group I	Group II
145-149	4	0
140-144	11	0
135-139	8	0
130-134	18	0
125-129	40	1
120-124	56	1
115-119	67	6
110-114	76	11
105-109	75	16
100-104	69	15
095-099	29	11
090-094	31	15
085-089	22	21
080-084	10	10
075-079	10	6
070-074	8	2
065-069	0	2
060-064	1	0
055-059	1	1
	N 536	N 118
A. M.	110.22	96.48
Sigma	15.04	13.00

C. R. 10.1

average mental age of five years, four and one-half months. Over-ageness may have suggested placement from the consideration of social adjustment. In considering the eleven in Group II who ranked below 80 in I. Q., the average chronological age is six years and ten months with an average mental age of four years and ten months. While these are not quite so old and possess a slightly lower mental age, it is doubtful if they fall in a different class than the twenty that were just considered.

The twenty pupils from Group I closed third grade experience with an average score of 3.5 on Gates Silent Reading Test and the eleven in Group II closed third grade experience in four years with an average grade score of 3.6. The pupil scoring highest in the group of twenty of Group I made a grade score of 4.2 at the end of third grade and the one scoring highest in Group II made a grade score of 5.3. Since no advantage of placement is here shown, it is possible that one year of time might have been saved for the eleven pupils in Group II.

While the group differences in I. Q. is highly significant it is likely that this difference represents more than rate of maturity for learning to read. It is highly probable in many cases that this difference will not be erased by the mental maturity that is expected for success in reading. This points to the need of curricular differentiation but not necessarily to delay for the task at hand. The overlapping shown in Table III and the exceptions sighted above suggest the inadequacy of conclusions drawn from test results that have not considered all factors.

Table III also shows eight in Group II who have intelligence quotients of 115 or above. Why should these be classified in the reading readiness group? The detailed data on these eight pupils show an average chronological age of 70 months with an average mental age of 83 months on entering. This mental age would seem to justify their placement in a regular first grade situation though they do possess a low average chronological age for first grade work. Their performance on the Metropolitan Test, an average score of 63, approximates the first quartile point of 60. This low performance on the Metropolitan Test, coupled with their immaturity, seems to have been the basis on which their placement was effected. In practice it is found that these marginal cases are the ones that need to be singled out for guidance consideration all along the way. When these pupils took the Gates Primary Test at the close of second grade experience, their average performance was 3.11 which is slightly below the median of 3.20 for closing second grade performance. At the close of third grade they had an average grade performance of 4.9 which approaches the third quartile of 5.1 of this test. Thus one finds no evidence here to indicate that these were better classified in the pre-primary group.

Perhaps Group I would have held better placement for them in giving them the stimulus of being classified with higher achievers. The table shows also that for the eight who had intelligence quotients of 115 or above which was 6.8 per cent of Group II there are 204 or 31.8 per cent in Group I with the same ranking in intelligence.

Readiness Ability. The Metropolitan Reading Readiness Test is designed to predict success in learning to read. Table IV shows a comparison in frequency distribution of the scores made by the two groups on this test. The arithmetic mean score of Group I is 81.9 with a sigma of 16.01. Group II earned a mean score of 54.84 with a sigma of 16.00. The critical ratio of the difference here shown is 16.6.

In the consideration of the groups these data present evidence of a significant difference in performance when ability to attack instruction in reading is measured by the devices that are employed in this test.

The correlation between reading readiness as measured by the Metropolitan Reading Readiness Tests and mental ages is .54 ± .03 for Group I and .49 ± .07 for Group II. The authors report correlation for the Test with mental age as measured by different mental tests from .53 to .79.

The Metropolitan Tests scores correlated with Gates Primary Tests results .28 ± .04 for Group I and .07 ± .09 for Group II.

Albert Grant experimented with 260 first grade pupils from three public schools in Cincinnati, Ohio. The median chronological age of the group was 6 years five months. He found the correlation between the Metropolitan Readiness Tests and Reading Achievement Tests to be .64 ± .025. For the Pintner Cunningham Primary Intelligence Tests he found a coefficient of correlation with Reading

Table IV

Comparison of the Distribution
of Pupils of Group I and
Group II on the Basis of
Scores Made on the
Metropolitan Reading Readiness Tests

Score	Group I	Group II
115-119	2	0
110-114	8	0
105-109	25	0
100-104	37	2
095-099	55	0
090-094	61	1
085-089	62	1
080-084	66	1
075-079	54	5
070-074	51	6
065-069	39	17
060-064	30	13
055-059	19	18
050-054	13	14
045-049	5	13
040-044	3	8
035-039	1	5
030-034	2	5
025-029	1	4
020-024	1	3
015-019	1	2
	N 536	N 118
A. M.	81.9	54.84
Sigma	16.01	16.00

C. R. 16.6

Achievement Tests of .63 ± .025. He stated[14]

> The Metropolitan Readiness Test when applied to first grade pupils measured factors which are significantly related to later success in reading skills. The relation between the Metropolitan Readiness Test and later achievement in reading is as close as the relation usually found to exist between intelligence test and test of achievement. The Metropolitan Readiness Tests are on a par with the Pintner Cunningham Primary Intelligence Tests in providing a basis for predicting later achievement in reading.

Deputy[15] secured correlation of .66 (no probable error given) between reading achievement and reading readiness tests devised by himself.

Virginia Harrison[16] found a correlation of .48 ± .079 between Metropolitan Readiness Test and reading achievement as measured by Tulsa Reading Progress Test Number II.

Dean[17] found the correlation of .59 ± .03 between the Metropolitan Readiness Tests and reading achievement and a correlation of .62 ± .03 between Mental Age as measured by the Stanford Binet Intelligence Test, and reading achievement. Dean used the multiple correlation technique correlating mental age and scores on the Metropolitan Readiness Tests with reading achievement, which gives a multiple correlation of 64 ± .037. He concludes:

> In this study the combination yielding the highest multiple correlation with reading achievement is the combination of mental age and scores on the Metropolitan Readiness Tests.

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[14] Albert Grant, "The Comparative Validity of the Metropolitan Readiness Tests and the Pintner Cunningham Primary Mental Test, Elementary School Journal, Vol. 38. (April, 1938), pp. 599-805.

[15] Deputy, op. cit.

[16] Virginia Harrison, op. cit.

[17] Dean, op. cit., p. 614.

Employing this technique in this study we obtain a multiple correlation of .29 ± .03 when reading achievement as measured by Gates Primary Reading Tests is correlated with mental age and Metropolitan Readiness Tests results.

At the close of the third grade experience reading achievement as measured by Gates Silent Reading Tests correlates .34 ± .04 with mental age and .30 ± .04 with the Metropolitan Readiness Tests results. Here when mantal age and Metropolitan Readiness Tests results are combined for a correlation with reading achievement a coefficient of .37 ± .027 is obtained. These factors of prediction operate with less value in the Tulsa plan than when employed by Dean.

The data of Table IV show 46 of the 536 in Group I to rank below a score of 69, the lower quartile point of the Metropolitan Readiness Tests. This is 8.9 per cent of the group. Group II has 72 of its 118 pupils below this score, which is 61 per cent of this group. The implication here is that the 46 in Group I should have been considered for Group II if the basis of placement had been on Metropolitan Test results alone. It is evident that those making placement gave weight to other elements of readiness.

Data on these 46 pupils of Group I present some points of interest. The average chronological age for the 46 is 75.22 months. The average mental age is 73.7 months which is below the standard of six years and six months advocated by a number of writers in the

field of primary reading. The average I. Q. for the group is 99.46 and the average score on the Metropolitan Reading Readiness Test 49.67. Yet when the performance of this group is observed at the close of first grade an average score of 75 on the Tulsa Reading Progress Test No. 2 is found. The median on this test is 76. Thus, this group performs satisfactorily. At the close of second grade performance the average score on the Gates Primary Reading Test is 3.02, slightly below the mean of 3.2. At the close of third grade the average score of the group is 4.3, ranking slightly above the mean of 4.1. This performance tends to justify their classification in the regular first grade even though the criteria advocated for placement appeared to recommend their need for readiness training. The performance of this group seems to place some doubt on the validity of the criteria recommended.

In considering individual cases, one would investigate as to why five of the pre-primary group had an average Metropolitan Readiness Test score of 80 or above. The other data on these pupils show an average chronological age of six years and ten months, an average mental age of six years and eleven months, and an average intelligent quotient approximating 102. It would seem, then, from these data that there is no reason for these pupils being so classified. A look at the achievement performance of the five pupils gives the following picture. When they closed the experience of first grade they made an average score of 51 on the Tulsa Progress Test. This approximates the lower quartile point of 49 on this test. At the close of second grade experience their performance on

the Gates Primary Reading Test was 2.75 which is below the first quartile point of 2.84. On the Gates Silent Reading Test at the close of third grade experience their average performance was 3.3 which is below the first quartile point of 3.5 on this test.

Such low performance seems unlikely for pupils possessing average potential with a chronological age of six years and ten months. Here one would suspect some error in test results or some element outside of the data that operated in this retardation.

Comparison of First Year Achievement

In May, 1937, each of these groups was finishing one year's experience, above the kindergarten, in the elementary school. Group I had experienced the regular curriculum of the first grade as prescribed by the Tulsa elementary school. Group II has experienced a curriculum designed to build the techniques that underlie readiness to learn to read. It is expected that this instruction has developed the ability to read simple sentences found in pre-primer and primer materials. Each group was given the Tulsa Reading Progress Test No. II, a test that has been described in Chapter I and which is constructed from the basic reading material of the Tulsa curriculum and which contains 100 items. Since these groups experienced different curricula comparable progress cannot be expected. It was planned that this test would eventually become the instrument that would measure both first grade and pre-primary pupils by a set of separate standards. The results were taken as a measure of reading achievement to date in the experience of the children making up these groups. Group I has a rather wide range since it possesses a few pupils who score rather low. The range is from 12 to 100 in score points with a mean of

84.06 and a sigma of 14.36. Group II shows a range of from 2 to 82. An inspection of Table V shows that in Group I the greater number are grouped around high scores while in Group II the greater number are grouped around low scores. Group II earned an arithmetic mean of 35.10 with a sigma spread of 16.51. The critical ratio of the mean difference here is 27.5.

On further analysis of Table V showing the performance of Group I and Group II on the Tulsa Reading Progress Test No. 2, one finds 14 of Group I or 2.6 per cent failing to reach the median of 49 on this test while in Group II 80 or 67.8 per cent failed to reach this score. Also this table shows that only two of the 118 pupils or 1.6 per cent in Group II reached or exceeded the median of 78 on this test while 398 or 74.2 per cent of the 536 pupils in Group I reached or exceeded this median. However, the overlapping in this table showing the results of first year accomplishment, even in the face of different curricular experiences, bears evidence that placement has been ineffectually done for several pupils.

Comparison of Achievement at the Close of First Grade Experience

The norms for the Tulsa Reading Progress Test No. 2 from which standards were set up were derived from the administration of the test to 2294 first grade and pre-primary entrants. Since 1937 the Tulsa Reading Progress Test has been revised and thrown into two forms by the split-halves technique, and the new form was given to the first grade that finished the curriculum in 1938. Hence, the results obtained as shown by Table VI, when this test was administered to

Table V

Comparison of the Distribution
of Pupils of Group I and
Group II on the Basis of
Scores Made on the
Tulsa Reading Progress Test No. II

Score	Group I	Group II
100	14	0
095-099	100	0
090-094	122	0
085-089	85	1
080-084	57	0
075-079	51	2
070-074	33	0
065-069	19	2
060-064	17	2
055-059	11	3
050-054	11	7
045-049	6	6
040-044	3	12
035-039	2	10
030-034	2	14
025-029	1	15
020-024	1	6
015-019	0	7
010-014	1	5
005-009	0	5
000-004	0	1
	N 536	N 98
A. M.	84.06	35.10
Sigma	14.36	16.51

C. R. 27.5

Table VI

Distribution of the Pupils of Group II on the Basis of their Performance on the Tulsa Reading Progress Test Revised

Score	Group II
055	7
050-054	36
045-049	25
040-044	20
035-039	15
030-034	6
025-029	6
020-024	1
015-019	1
010-014	1
N	118

Mean 44.96

Sigma 8.90

the 118 which made up Group II of this study at the time that this group finished first grade experience are not directly comparable to the results obtained by the application of the Tulsa Reading Progress Test No. II to the 536 pupils finishing first grade who completed the work in 1937. However, for purposes of this study it appears that the following comparisons will be adequate. On the standardizing of Tulsa Reading Progress Test No. II the group scores showed a lower quartile point of 49, a median score of 78, an upper quartile point of 91, and a ceiling of 100. Tulsa Reading Progress Test, Form A, when standardized in 1938 on a group of 1555 completing first grade experience, showed a lower quartile point of 41, a median score of 48, an upper quartile point of 52, and a ceiling of 55. From these quartile points we can draw the following comparisons of Group I and Group II in the study.

Table No. VII sets forth the data so that comparisons can be made at a glance. This presentation of data shows 97 per cent of Group I reaching or exceeding Q_1 when the test is administered to all first year entrants at the close of first year experience in the elementary school. Here it would be expected that Group I which is composed only of regular first grade pupils should perform above the norm. The group showed 74 per cent reaching or exceeding the median and 39 per cent reaching or surpassing the third quartile. Group II in performance at the close of their first grade experience, which represented two years of elementary school work beyond the kindergarten, showed 71 per cent reaching or exceeding the Q_1 standard

Table VII

Comparison on Quartile Points
of the Performance of Group I
on Tulsa Progress Test No. II and Group II
on Tulsa Progress Test Form A (Revised)

	Q_1	Mdn.	Q_3	Ceiling	No. Cases
Tulsa Reading Progress Test No. II	49	78	91	100	2294
Per cent of Group I reaching or exceeding	97	74	39		536
Tulsa Reading Progress Test Form A	41	48	52	55	1555
Per cent of Group II reaching or exceeding	71	45	25		118

when the test was administered to 1555 first graders at the close of first grade experience. Forty-five per cent of Group II reached or exceeded the median, and twenty-five per cent reached or exceeded Q_3. Thus the group approached the norms for the first grade approximately. This fact appears to show that the experience of one year in readiness training plus one year in regular first grade work has failed to bring the pre-primary to a standard of performance equal to that of the regular first grade.

One cannot fail to wonder how many of Group II might have approached the attained standards one year earlier by being classified in grade one. This study cannot answer this question since to do so would have required an experimental set-up employing a control group as well as an experimental group which seemed infeasible in a public school system on account of the differentiation of similar groups. The question as to whether the curricular offerings are proper and adequate remains still unanswered. The slower moving group only approaches the norms after an extra year of school experience. This may be governed by factors outside of curricular possibilities. The Tulsa plan may be attempting to attain a standard of performance that is impossible and the price of an extra year may be too dear to pay when the welfare of some of Group II is considered.

Comparison of Achievement
At the Close of Second Grade Experience

The results of the performance of Group I and Group II at the close of second grade experience is shown by Table VIII. Accomplishment in second grade reading was measured by the administration of the Gates Primary Reading Test, and a composite of the scores made on this test taken as a grade score for this study. Group I closed this experience in May, 1938, and Group II, in May, 1939. A mean score of grade 3.20 was earned by the 536 pupils of Group I, and a mean score of 2.87 was attained by the 118 pupils in Group II. The sigma of scores for Group I was .36 and for Group II, .48. The critical ratio of the mean difference is 7.0.

An examination of Table VIII will reveal the fact that in both groups scores pile up toward the upper limits of the distribution. This is more nearly true with Group I than it is with Group II, Group I scoring consistently higher than does Group II, and the dispersion for Group II is greater than for Group I. This piling up at the upper end of the distribution is typical of the Gates Primary Reading Test when administered to the second grade, and it is generally understood in the use of this test by the Tulsa Public Schools that the test does not discriminate well in measuring the upper quartile of the population completing second grade experience. For the purposes of this study, the comparison of group performance, this does not invalidate this test. A public school should, however, seek an instrument that differentiates the upper quartile more

Table VIII

Comparison of the Distribution of Pupils of Group I and Group II on the Basis of Grade Score Performance on Gates Primary Reading Test

Grade Score	Group I	Group II
3.50-3.59	45	3
3.40-3.49	151	6
3.30-3.39	110	16
3.20-3.29	54	18
3.10-3.19	41	9
3.00-3.09	36	6
2.90-2.99	18	6
2.80-2.89	20	6
2.70-2.79	14	13
2.60-2.69	8	6
2.50-2.59	7	3
2.40-2.49	7	3
2.30-2.39	8	7
2.20-2.29	5	2
2.10-2.19	5	3
2.00-2.09	1	5
1.90-1.99	2	2
1.80-1.89	0	2
1.70-1.79	1	0
1.60-1.69	1	1
1.50-1.59	0	0
1.40-1.49	1	1
1.30-1.39	1	0
	N 536	N 118
A. M.	3.20	2.87
Sigma	.36	.48

C. R. 7.0

satisfactorily for the purposes of guidance in this area.

These data on performance at the end of second grade experience show Group I, at the end of two years' experience, making significantly higher scores than does Group II at the end of three year's experience. The pre-primary plan has given the pupils who were classified in the reading readiness group an extra year in which to meet the requirements of the grade. In this classification they have experienced less of competition than would have been possible had they been classified in sections of pupils making up Group I. This study has no way of determining what greater competition might have meant for certain individuals. It, no doubt, would have stimulated some to efforts resulting in greater accomplishment and for others this competition might have meant discouragement and a marked feeling of failure. In this situation the pupil of mediocre ability may have had a greater opportunity for relative success and for leadership training at the expense of functioning in a less rich environment.

The distribution of scores made by the pupils of Groups I and II on the Gates Primary Reading Test at the close of their second grade experience shows 360 or 67.2 per cent of the pupils in Group I reaching or exceeding the norms for median performance on this test. Group II has 43 or 36 per cent exceeding this median. It is the overlapping represented here that suggests that some of these in Group II might have performed satisfactorily if they had been classified with

the regular first grade and had finished second grade experience one year earlier.

As has been said before, this test fails to differentiate in its upper reaches when given to the pupils who are finishing second grade experience. The writer would recommend, therefore, that the people exceeding the upper quartile of 3.51 be given some other test that would measure a broader range of their abilities and thus point more adequately to any grade placement adjustment that should be made.

Comparison of Achievement at the Close of Third Grade Experience

In the Tulsa Public Schools the Gates Silent Reading Test is administered at the close of third grade experience. A composite of the scores made on these tests was taken as a grade score for this study. Table IX shows the comparative distribution of the pupils of Group I and Group II on the basis of this test. Group I makes an average grade score of 4.71 with a sigma of 1.40, while Group II makes an average grade score of 3.89 with a sigma of .95. In performance on this test the critical ratio of the means is 7.7, a significant difference in performance. The mean on the test at the close of the third grade is 4.1.

An examination of the data shown in Table IX will reveal that Group I scores consistently higher than Group II at the close of the experience of the third grade, though Group II has been in

Table IX

Comparison of the Distribution of Pupils of Group I and Group II on the Basis of Grade Score Performance on Gates Silent Reading Test

Grade Score	Group I	Group II
10.0-10.4	2	0
9.5-9.9	4	0
9.0-9.4	3	0
8.5-8.9	5	0
8.0-8.4	8	1
7.5-7.9	9	1
7.0-7.4	9	0
6.5-6.9	21	1
6.0-6.4	27	3
5.5-5.9	40	3
5.0-5.4	47	6
4.5-4.9	71	6
4.0-4.4	99	19
3.5-3.9	112	31
3.0-3.4	77	44
2.5-2.9	2	3
	N 536	N 118
A. M.	4.71	3.89
Sigma	1.40	.95

C. R. 7.7

school one year longer. It will be noticed, however, that the general format of the distributions is typically the same. Pupils in both groups are grouped around the lower grade scores as measured by the test. This is a performance that would be expected at this grade level since the range in ability that this test measures is a rather broad one reaching into the upper grades.

As in the case of results shown by the previous year test data on Groups I and II, Group II, though it has had four years to advance through the experience leading up to the fourth grade fails to reach the average norm for the grade.

A further analysis of Table IX shows 168 or 31.3 per cent of the 536 pupils in Group I reaching or exceeding the third quartile point on Gates Silent Reading Test. Fourteen or 11.9 per cent of the 118 in Group II reach this point.

Here again we find an overlapping that suggests that there are performers in Group II that would have completed the third grade satisfactorily one year earlier had they been classified with the regular first grade on entering elementary school experience.

Thus, it is found that the difference in the achievement of the two groups places Group II significantly lower than Group I even though an extra year of readiness training has been given. If the factor of gaining reading readiness techniques was the only one operating here and if the readiness curriculum is adequate in content and application then this difference should be lowered by the reading readiness group approaching more nearly the achievement of the regular first grade.

Mental maturity for Group II, in the year that has intervened has progressed 11.58 months. This is found by applying the average I. Q. of the group, 96.48, to the time passed. This approaches very closely the 11.78 months difference in the average mental ages of the Groups as shown in Table II.

The conclusions must then be drawn that the differences represented are more than are erased by mental maturity and time to obtain readiness to read techniques.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

In considering the criteria for placement employed in the Tulsa Public Schools this study finds lower correlations of achievement with the criteria than have been found in most of the other studies where these criteria have been employed. These facts are presented in Table X and Table XI, comparing the results from several studies. A part of this lowering of the effect of predictive criteria may be accounted for by the element of selection that operated in defining the different groups, but it is likely that the techniques of interpreting criteria have been less standardized since this study employs data taken from a whole school system, whereas most research studies of this kind have employed groups from one building. There is some evidence that the overlapping in achievement of the two groups indicates misplacement of certain individuals, and that the criteria for placement as employed do not give as satisfactory results as should be desired.

If the plan is to be continued, its effectiveness could be greatly improved if the techniques of handling criteria were better standardized. An example of this would be a standardization of procedure in the use of the Pupil Rating Chart in the kindergarten so that all teachers concerned would have a better understanding of how to rate the qualities or traits considered. The rating factors should also be so obtained that they might

Table X

Comparison of Correlations Between Mental Age and Reading Achievement from This and Other Studies

	Number of Cases	Achievement Test	Correlation
This Study	536 (Group I)	Gates Primary	.23 ± .04
This Study	118 (Group II)	Gates Primary	.11 ± .09
This Study	536 (Group I)	Gates Silent	.34 ± .04
This Study	118 (Group II)	Gates Silent	.17 ± .09
Dean	116	Metropolitan Reading Achievement Test	.62 ± .03
Deputy	103	Author's Own Tests	.70
Harrison	120	Tulsa Reading Progress Test	.38 ± .05
Keister	Groups Vary	Gates Primary Tests	.20 ± .09 to .37 ± .09

Dean, op. cit., p. 612.

Deputy, op. cit., p. 21.

Virginia Harrison, op. cit., p. ii, Appendix III.

Keister, op. cit., p. 592.

Table XI

Comparison of Correlations Between
Readiness Tests and Reading Achievement
From This and Other Studies

	Number of Cases	Readiness Test	Correlation
This Study	536 (Group I) (Gates Primary)	Metropolitan	.28 ± .04
This Study	118 (Group II) (Gates Primary)	Metropolitan	.07 ± .09
This Study	536 (Group I) (Gates Silent)	Metropolitan	.30 ± .04
This Study	118 (Group II) (Gates Silent)	Metropolitan	.12 ± .09
Dean	116	Metropolitan	.59 ± .03
Dean	116	Monroe Reading Aptitude	.41 ± .04
Deputy	103	Tests of Author	.66
Harrison	120	Metropolitan	.48 ± .08

Dean, op. cit., p. 614.

Deputy, op. cit., p. 31.

Virginia Harrison, op. cit., p. iii, Appendix III.

become a part of the recorded data and thus be available for information and evaluation.

Another area in which a marked improvement could be made is in the handling of test results to the end that a more thorough analysis of the data might be secured. This is needed for the purpose of acquainting teachers with the different types of performance secured from the individual so that more effectual instruction may result in more adequately meeting the needs of pupils. Gates gives great emphasis to this point as quoted on page 17 of this study.

The results of this study fail to show that the Tulsa plan meets in an adequate way the problem of the immature entrant, since many of the immature appeared to do as well in first grade classification as did their fellows in pre-primary classification. (page 62 of this study). Thus it appears that the readiness experiences gained in regular first grade were quite as effectual for some pupils in ultimate achievement as were those that it took an extra year to secure on the part of some pupils who seemed to be placed in practically the same standing by the employed criteria (page 57 of this study).

It seems that the Tulsa plan of eliminating failure in first grade is such in name only since the year of delay in learning to read is still present and carries to some extent in the minds of pupil, parent, and teacher the idea of failure. This element of failing to succeed is the result of making formal reading the main objective of first grade experience and failing to take into

account the true significance of individual differences. First grade experience need not and should not be the same for all individuals. The aim of the year is learning to read rather than meeting the needs of the individual child.

This points to the need of change in curricular objectives. The emphasis on formal reading seems to indicate that in practice the philosophy held on the maximum development of the individual child is not being promoted satisfactorily. This belief is supported by the facts shown in Tables XII and XIII. Table XIII reviews the achievement record of the groups and shows that at each level highly significant differences continue to exist. This condition holds even though an extra year of time has been given the reading readiness group in which to mature and be trained in reading readiness techniques. These two tables present facts that imply, in the opinion of the writer, that the providing of time for maturity and training of the readiness group does not adequately take care of the differences that exist. To do this satisfactorily a greater variation in curricular offerings must be provided, and it is quite as essential that a greater variety of goals to be attained must be established and receive recognition in the elementary school curriculum.

Table XII

Comparison of the Means of Initial Status Criteria of Group I and Group II

	Group I	Group II	Critical Ratio of Differences
Chronological Age	76.62	75.04	2.6
Mental Age	83.03	71.25	13.2
Intelligence Quotients	110.22	96.48	16.6
Metropolitan Readiness Tests	81.90	54.84	10.1

Table XIII

Comparison of Means of
Achievement of Group I and Group II

	Group I	Group II	Critical Ratio of Differences
Tulsa Reading Progress Test Number 2	Close of First Grade 86.06* Score	Close of Pre-primary 35.10 Score	27.5
Tulsa Reading Progress Test Revised		Close of First Grade 46.96* Score	
Gates Primary Reading Tests Close of Second Grade	3.20 Grade Score	2.87 Grade Score	7.0
Gates Silent Reading Tests Close of Third Grade	4.71 Grade Score	3.89 Grade Score	7.7

*Not directly comparable see pages 65 and 68 of this study.

The writer finds in the following statement of Smith and Jensen an acceptable general statement of the problem involved in improving the Tulsa plan.[1]

> Reading readiness is a problem that is receiving much attention. There is, however, an apparent conflict between common practice and the findings of research. Findings in the fields of psychology and physiology tend to point to the advisability of postponing the beginning of the reading process, while educational practice tends toward the requirement of more reading at an early age.
>
> Reading readiness means the maturation of all the mental, physical, and emotional factors in the reading process. Regardless of the chronological age of the child, the point at which the child's growth and development have brought about proper maturation of these factors should be the point at which the reading process begins. To take wholly into account these factors would necessitate changes in the school curriculum and school program in order to adjust to the needs of the child and to make provision for many more types of educational activity at the first grade level. The adoption of such a program would undoubtedly eliminate much of the present retardation and the remedial work necessarily carried on in the majority of schools.
>
> The chief function of grade one has been, and still is, in most places, to teach the child to read. More and more premium is being laid on maximum attainment in reading, little account being taken of the child's psychological and physiological development. Competition urges pupils and teachers. Parents bring pressure to bear on the school in the belief that the ability to read at an early age is a sign that their children are as well equipped as other children.
>
> The indications are that the school of the future will need to break away from its present regime and set up new curricula and programs at the lower levels. The school must make provision for new types of experiences and activities for mental, physical, and emotional growth.

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[1] Charles A. Smith and Myrtle R. Jensen. "Educational Psychological and Physiological Factors in Reading Readiness." Elementary School Journal, pp. 689-690 (May 1936) and pp. 583-594 (April 1936).

The writer hopes that any reference to grade may also be erased in the school of the future. He believes that the welfare of the child cannot be adequately provided for until we have larger units of time in which to provide for periods of development. He would divide the elementary school into two of these periods. The first would incorporate the experiences of the new curriculum into a period known as the primary elementary school and the second would provide for the proper experiences to prepare the child for the junior high school. This would eliminate placement to meet subject matter needs and the Tulsa pre-primary would be blended with the first grade in such a way that each would cease to exist.

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