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# The Reading Attainments of Primary School Children in Three Queensland Schools

Research Study Number 9

BY  
R. J. ANDREWS



FACULTY OF EDUCATION

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**THE READING ATTAINMENTS OF PRIMARY  
SCHOOL CHILDREN IN THREE  
QUEENSLAND SCHOOLS**

I

**INTRODUCTION**

This study is concerned with one aspect of the problem of teaching reading to classes of primary school pupils so that each child is working at maximum efficiency and making progress commensurate with his abilities. It seeks to make objective assessments of variations in the reading attainments of children enrolled in a number of school grades, considers the extent to which the attainments of children in consecutive grades overlap each other, and discusses the implications of the findings in respect to these points for teachers of reading.

Obviously children enter our schools with a wide range of abilities, attitudes, home backgrounds, and pre-school opportunities. These factors are now widely accepted as having an important influence on the development of those characteristics possessed by a child who is considered to be ready for formal learning. In respect to reading, some children are already familiar with various types of reading material; others have paid only scant attention to any written communication—except perhaps such things as the covers of food packets and advertisements on cinema and

television screens. Pre-school children may know, for example, that one reads a book from left to right and from top to bottom of the page. They may also have command of an adequate vocabulary, a ready fund of general knowledge, and may show sufficient confidence and emotional adjustment to enable them to begin the new tasks inevitably presented in the school reading lesson. There will be some children of the same age, on the other hand, who will be deficient in one or more of the above qualities and thus will be less well equipped to undertake formal reading tasks.

And so, on the day the young boy or girl enters the school-room, these pre-school experiences, abilities, and other pupil characteristics are an important consideration for the teacher, since their effect on the pupil's readiness to begin formal learning must be taken into account.

It has been established, for instance, that at about 5+ years of age, children's knowledge of the words used in infant readers can vary significantly. When tested on a random list of these words, Scottish children<sup>1</sup> of this age knew, on an average, 76.5 per cent of words used, but the less able children in the group had scores ranging down to as low as 30 per cent of the list.

The pupil experiences and characteristics referred to above as having an effect on the early reading experiences of children continue to influence their accomplishments in the communication skills throughout the primary or elementary school. These initial influences are later augmented or diminished by other variables, and together the result is generally to increase the range of children's scholastic achievements throughout the primary school years. These "at-school" variables now include such diverse influences as the child's relative achievements in all school subjects, his general and specific abilities, the attitudes he develops to his work, his social milieu and his adjustment to this, the nature of the school curriculum, the teaching methods that have been and are being employed by teachers, and the reading materials which he uses. The total result of these many influences deriving from the child himself, from his social environment, and from the school, can be evidenced in the continuing spread of pupil achievements. One study, involving over 50,000 pupils in the eighth grade of American high schools, revealed that by the time children reached this grade the range of reading achievements spread over eight grade levels; and only 14 per cent of the sample were of eighth grade reading ability.<sup>2</sup>

The investigation reported here gives additional data on the extent of the distribution and range of pupil reading abilities. It is concerned with a number of school grade levels in three Queensland primary schools where a particular system of teaching reading is followed. Obviously a survey of this kind can do little more than bring together some further evidence bearing on this subject. It may well be that in other countries or places where reading is taught by a different approach, or where the variables mentioned affect children's learning in a different way, the diversity of pupil achievements would vary, more or less, from the spread reported in this study. Hence, in addition, this investigation may well provide some data for comparative studies which could be carried out incorporating the results of similar or closely associated investigations in a number of places in English-speaking communities.

In considering the findings of this study, possible causal factors have been mentioned and suggestions have been made for meeting the problem in the school programme as it exists. These reasons may necessitate only minor adjustments, but it could not be anticipated that any major alterations to school procedure could result from a single investigation of this type.

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<sup>1</sup>Scottish Council for Research in Education, *Studies in Reading* (London: University of London Press, 1956), I, 135.

<sup>2</sup>*What We Know about High School Reading* (Illinois: National Conference on Research in English, 1957), p. 38.



## II

*The Investigation*

In Queensland, where this investigation was undertaken, the present-day practice in most primary schools is to promote a child from year to year through the school grades with pupils of his own age group.<sup>3</sup> This "lock-step" system of promotion means that nearly all pupils, including slow learners, proceed from one "unstreamed" school grade to the next, irrespective of their attainments in school subjects. Few children are required to repeat a school grade.

Although by this method pupils are placed in a situation with obvious advantages, including the opportunity of mixing socially with others of their age group, the range of their reading, spelling, arithmetic, and other achievements must widen as they progress up the school grades. The slow learners drop further and further behind, and, if given adequate opportunity, the abler pupils forge more and more ahead of their class fellows.

This variation in the attainments of pupils in each school grade, from those who do poorly at the subject to those who master it with ease, leads to the necessity for frequent adjustments in the teaching methods employed for various school subjects so that pupils at all levels of achievement in each class are extended in their school work, and are challenged, not without success, to the limits of their capacity in each subject. There is probably no other area in the primary school curriculum in which this diversity of pupil attainment within a class has greater repercussions on the teaching procedures which might be employed than in the teaching of reading.

The average reading achievement of pupils in a school grade—whether in terms of vocabulary content, comprehension skill, ability to draw inferences, and so forth—must be expected to show some growth, and to increase from year to year. Nevertheless, it must also be recognized that there will, for example, always be pupils in Grade IV who are better readers than others in Grade V, and also pupils in Grade VI whose reading achievements do not match those in the upper levels of the lower school grades. Thus some overlap in the reading ability of the pupils in consecutive school classes is to be expected. This range and overlap of reading achievements is examined in the following pages.

*(a) Children Included in the Sample*

The investigation was undertaken with children who attended three primary schools situated on the outskirts of the Brisbane metropolitan area. The schools together had an enrolment of over 2,000 children. Pupils in Grades IV, V, and VI comprised the sample group. Table 1 indicates the number of boys and girls in each grade in the three schools.

The schools were situated in a somewhat isolated "satellite-type" of suburban area, separated by woodlands from other urban communities, and hence the pupil population offered opportunities for an enquiry into the reading attainments of a large number of pupils living in an area where there appeared to be little variation in the pattern of family socio-economic status. A pilot survey of the occupations of householders revealed that 87 per cent of fathers were employed in skilled, semi-skilled, and unskilled occupations.<sup>4</sup>

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<sup>3</sup>Indeed it has been noted that non-English speaking immigrant pupils, when admitted to classes in Australia, do best if they are placed in groups of similar chronological age—Vide I. G. Meddleton, "Learning Problems Associated with the Teaching of Non-English Speaking Migrant Children in Australia", *The Forum of Education* (Sydney Teachers' College, 1960), Vol. XIX, No. 2.

<sup>4</sup>In Queensland 68 per cent of the employable male population (except rural workers) came within these categories in 1947 (1959 *Year Book* (Brisbane: Government Printer)). In a random selection of fathers in the survey area, 8 per cent were employed as clerks, 2 per cent as teachers, 1 per cent as small business owners, while 25 per cent were employed as skilled workers, 32 per cent as semi-skilled workers, and 30 per cent as unskilled workers.

TABLE 1  
 DISTRIBUTION OF PUPILS IN THE SAMPLE  
 (According to Sex, School, and School Grade)  
 Number of Boys and Girls in Each School and in Each School Grade\*

School Grade	School A	School B	School C	Totals (each grade)
Grade IV				
Boys	89	41	34	164
Girls	79	35	46	160
Boys and girls	168	76	80	324
Grade V				
Boys	79	28	47	154
Girls	69	29	32	130
Boys and girls	148	57	79	284
Grade VI				
Boys	65	27	36	128
Girls	68	25	38	131
Boys and girls	133	52	74	259
Totals (each school)				
Boys	233	96	177	466
Girls	216	89	116	421
Boys and girls	449	185	233	867

\*As would be expected, not all pupils were present for each of the tests used in this study, and hence the numbers of pupils in the sample group for each particular test may vary.

#### *Level of Ability*

In order to have readily available information on the intellectual ability of all pupils in the sample group, an intelligence test<sup>5</sup> was administered to each child at the beginning of the testing programme. Results calculated from the scores of all pupils on the test used gave a mean I.Q. of 96.6 (S.D. 16; S.E.  $\pm$  .58).

There was, however, an apparent variation in the mean I.Q. for pupils in the various grades.<sup>6</sup> Grades V and VI showed a slightly higher, and Grade IV a lower, mean I.Q. than the total sample group.

	<i>Grade IV</i>	<i>Grade V</i>	<i>Grade VI</i>
Mean I.Q.	93.56	99.26	97.36
S.D.	15.90	15.90	14.80

#### (b) *Tests and Testing Procedure*

The following tests were selected as suitable measures to provide the data for the investigation:<sup>7</sup>

##### *Group Tests*

The Essential Junior Intelligence Test, Form A, (Schonell and Adams).  
 Silent Reading Test B (Schonell).

##### *Individual Test*

Graded Word Reading Test (Schonell).

The battery of tests was administered in the above order to the pupils in Grades IV, V, and VI in each of the three schools. It was established that these pupils had not previously worked the tests given. Administration of the tests to the classroom groups was under standard conditions, and all marking was undertaken by an experienced marker so as to ensure accuracy and uniformity.

<sup>5</sup>Fred J. Schonell and R. H. Adams, *The Essential Junior Intelligence Test (Form A)* (Edinburgh: Oliver & Boyd).

<sup>6</sup>Since the test was not compiled in Queensland, this variation may possibly be due to factors in the test. (See Appendix)

<sup>7</sup>Details of these tests are given in the Appendix.

III

**Analysis of Results**

The testing programme yielded data on pupil reading achievements which were analyzed for information on the distribution, range, and overlap of the reading attainments of the children in the various school grades.

(a) *Distribution of Attainments in Reading*

The test results for all pupils in the sample grades were used as a basis for the construction of frequency distribution curves for both the test of word recognition and of silent reading comprehension ability. For the convenience of the reader, these graphs have been superimposed in Figure 1 below.

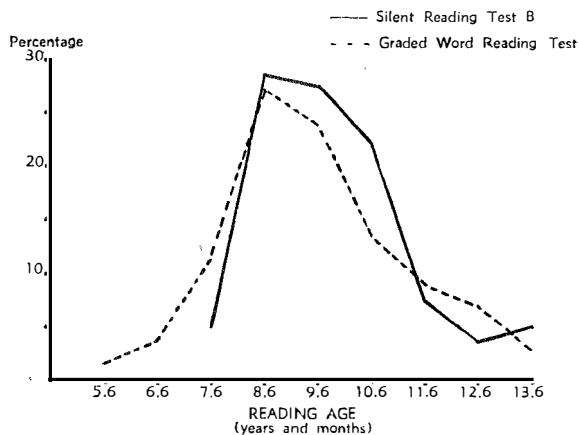


FIG. 1—Distribution of reading attainments: Grades IV—VI. The abrupt ending of the graph for the Silent Reading Test B is a reflection of the norms for that test—the lower limit of which is 7 years.

The median<sup>8</sup> reading scores for each of grades IV, V, and VI on these reading tests were calculated as follows:

TABLE 2  
MEDIAN READING AGES FOR EACH GRADE  
Silent Reading Test B and Graded Word Reading Test

TEST	MEDIAN READING AGES		
	Grade IV	Grade V	Grade VI
Silent Reading Test B	8 years 3 months	9 years 5 months	10 years 3 months
Graded Word Reading Test	7 years 11 months	8 years 11 months	9 years 11 months

These median reading ages are also given, for purposes of comparison, with the median chronological and mental ages of each grade. These are in tabular form below and diagrammatically shown in Figure 2.

It is interesting to observe that, although it was previously noted that the mean intelligence quotient for pupils in Grade IV was below the average for the total sample group, the median reading ages for this grade compare favourably with the corresponding mental age, whereas, by contrast, the median reading ages for pupils in Grades V and VI fall somewhat below the corresponding mental ages for all children in those grades.

<sup>8</sup>Medians were used, as they gave a better measure of central tendency with the existence of a number of scores falling at the end of the distributions for the Silent Reading Test B which, owing to limitations in the norms available, could not be differentiated in terms of reading age.

TABLE 3  
COMPARISON OF MEDIAN CHRONOLOGICAL, MENTAL  
AND READING AGES FOR EACH GRADE

	MEDIAN AGES AS SHOWN (in years and months)		
	Grade IV	Grade V	Grade VI
Median chronological age	8.9	9.10	11.2
Median mental age	8.0	9.9	10.10
Median reading ages—			
Silent Reading Test B	8.3	9.5	10.3
Graded Word Reading Test	7.11	8.11	9.11

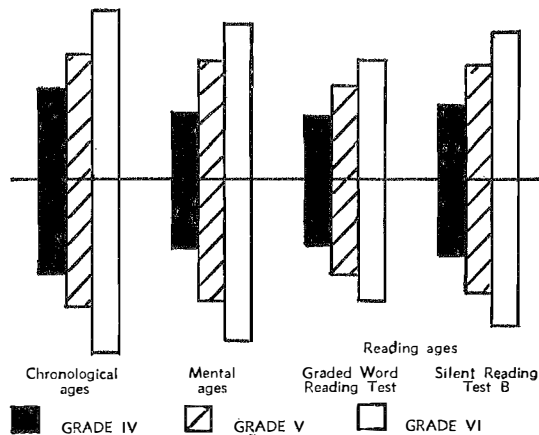


FIG. 2.—Comparison of median chronological, mental, and reading ages for each grade.

In addition to comparing the reading attainments of all pupils in each grade, consideration was given to the distribution of attainments within each grade level. One method of examining this distribution is to set out the incidence of scores within certain fixed reading age intervals. This has been done in Tables 4 and 5, where the incidence is expressed as a percentage of the number of pupils in each school grade.

TABLE 4  
PERCENTAGE OF PUPILS IN EACH GRADE WHO SCORED  
WITHIN GIVEN READING AGE INTERVALS  
Silent Reading Test B

READING AGE (Years and months)	DISTRIBUTION OF PUPILS (Percentages)			
	Grade IV	Grade V	Grade VI	Grades IV-VI
13.0+		2.0	15.7	5.2
12.0 — 12.11	.3	4.4	9.1	4.2
11.0 — 11.11	.7	6.0	17.6	7.3
10.0 — 10.11	6.5	32.7	30.1	22.1
9.0 — 9.11	27.5	33.6	21.6	27.7
8.0 — 8.11	52.5	20.5	5.4	28.4
7.0 — 7.11	12.5	.8	.5	5.1
Total	100.0	100.0	100.0	100.0

The above table gives some interesting data on the distribution of pupils in the various reading age levels indicated. It is noticed, for example, that, as would be expected, the highest incidence of pupils in the successive grades being studied lies within successive reading levels, namely:

- 52.5 per cent of Grade IV pupils in the sample group had a reading age within the interval 8 years to 8 years 11 months
- 33.6 per cent of Grade V pupils had reading ages between 9 years and 9 years 11 months, and
- 30.1 per cent of Grade VI pupils had reading ages from 10 years to 10 years 11 months.

The reader will no doubt notice also that the percentage of pupils with reading ages in these highest frequency intervals decreases progressively from Grade IV to Grade VI, an indication that pupils' reading attainments are spreading over a wider range of achievement levels.

TABLE 5  
 PERCENTAGE OF PUPILS IN EACH GRADE WHO SCORED  
 WITHIN GIVEN READING AGE INTERVALS  
 Graded Word Reading Test

READING AGE (Years and months)	DISTRIBUTION OF PUPILS (Percentages)			
	Grade IV	Grade V	Grade VI	Grades IV-VI
14.0 --- 14.11			1.3	.4
13.0 --- 13.11		2.8	4.8	2.4
12.0 --- 12.11	1.1	5.8	14.9	6.8
11.0 --- 11.11	2.2	10.7	15.3	9.1
10.0 --- 10.11	3.7	15.0	25.1	13.9
9.0 --- 9.11	20.3	28.8	23.7	24.3
8.0 --- 8.11	41.0	26.2	11.5	27.0
7.0 --- 7.11	20.6	8.5	3.0	11.2
6.0 --- 6.11	8.5	1.1	.4	3.6
5.0 --- 5.11	2.6	1.1		1.3
Total	100.0	100.0	100.0	100.0

There is a similarity in the distribution of reading attainments shown in Tables 4 and 5, since the highest percentage of pupils in each grade scored within the same intervals for the Graded Word Reading Test as for the Silent Reading Test B. It will also be observed that approximately 80 per cent of Grade IV pupils have reading attainments extending over *three* years of reading age (that is, from 7 years to 9 years 11 months), and that the reading attainments of approximately the same percentage of Grade V pupils extend over *four* years of reading age. Thus, as mentioned earlier, there is evidence in these distributions of an increasing dispersion of pupils' reading achievements.

(b) *Range of Reading Attainments*

This evidence of the increasing dispersion of reading attainments in successive school grades is further emphasized when consideration is given to the interquartile range for each school grade. This indicates the months of reading age over which the achievements of the middle fifty per cent of pupils in each grade are spread. For the Silent Reading Test B these were as follows:

- Grade IV—13.44 months
- Grade V—18.00 months
- Grade VI—25.44 months

and for the Graded Word Reading Test:

Grade IV—17.28 months  
 Grade V—24.84 months  
 Grade VI—27.84 months

The increase in this "spread" of results from Grades IV to VI is evident. Thus on the basis of the Silent Reading Test B results there is nearly twice the dispersion of reading attainments in Grade VI as there is in Grade IV.<sup>9</sup>

The evidence of increasing dispersion is again upheld by an estimation of the total range of pupil reading attainments in each grade, which is given in Table 6.

TABLE 6  
 RANGE\* OF PUPIL READING ATTAINMENTS IN EACH GRADE

SCHOOL GRADE	AVERAGE CHRONOLOGICAL AGE OF PUPILS	RANGE OF READING ATTAINMENTS IN EACH GRADE ON THE TESTS BELOW	
		Silent Reading Test B	Graded Word Reading Test
Grade IV	9 years 1 month	34.88 months	51.12 months
Grade V	10 years 3 months	48.72 months	63.48 months
Grade VI	11 years 7 months	58.80 months	61.20 months

\*Range is interpreted here as percentile 95 minus percentile 5 ( $P_{95} - P_5$ ).

Also worthy of note is the *extent* of the range of attainments in these grades, not overlooking the fact that the reading levels of 10 per cent of the grade members were outside these figures.

(c) *Overlap of Attainments in Reading*

From the previous consideration of Tables 4 and 5, the reader will already have noted that the "overlap" of reading attainments between each of the three grades is considerable. For example, from Table 5 it can be seen that 41 per cent of Grade IV pupils have reading attainments within the interval 8 years to 8 years 11 months, while 26 per cent of Grade V pupils and 11.5 per cent of Grade VI pupils also have reading attainments at this level.

If the percentage distributions given in these tables are presented as cumulative frequency graphs, the overlap of reading attainments between grades can be compared.

Ogives for these distributions are given in Figure 3 for the Graded Word Reading Test results and in Figure 4 for the test results on the Silent Reading Test B.

It can be determined from the ogive given in Figure 3 for example, that approximately 72 per cent of Grade IV pupils, 36 per cent of Grade V pupils, and 15 per cent of Grade VI pupils have reading ages of less than 9 years on the Graded Word Reading Test.

From an examination of Figure 4, estimates of the percentage of pupils in each grade who score above or below the median score for a higher or lower grade have been made. These revealed that on the Silent Reading Test B:

<sup>9</sup>The difference in the interquartile range given for each test may be accounted for in part by the norms used; a reading age of 7 years being the lower limit of the available norms for the Silent Reading Test B. This may also apply to later tables.

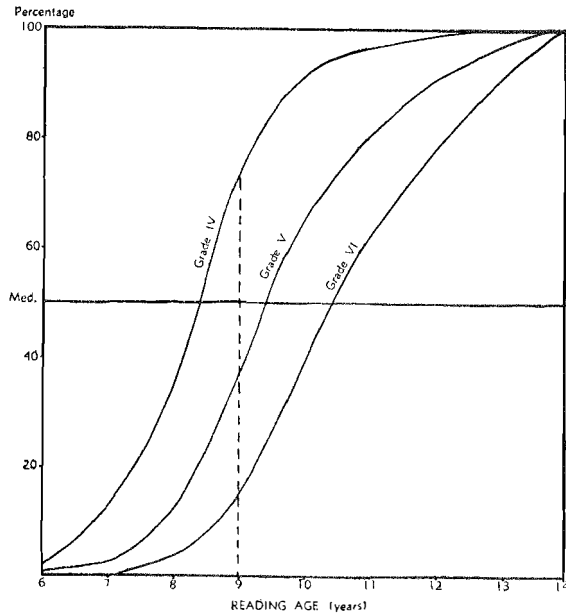


FIG. 3.—Cumulative frequency distributions of results on the Graded Word Reading Test.

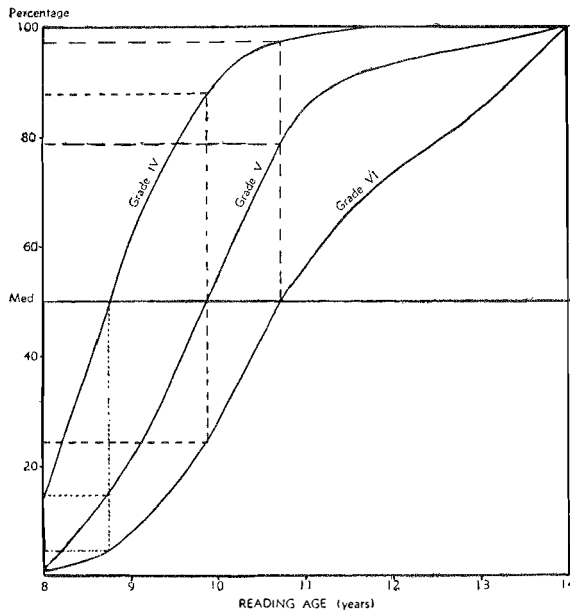


FIG. 4.—Cumulative frequency distributions of results on the Silent Reading Test B.

- 21 per cent of Grade V pupils scored better than the median reading age for Grade VI
- 12 per cent of Grade IV pupils scored better than the median reading age for Grade V
- 3 per cent of Grade IV pupils scored better than the median reading age for Grade VI.

It was also determined that:

- 24 per cent of Grade VI pupils scored less than the median reading age for Grade V
- 15 per cent of Grade V pupils scored less than the median reading age for Grade IV
- 4 per cent of Grade VI pupils scored less than the median reading age for Grade IV.

These percentages further indicate the extent to which the pupils in one school grade attain either above or below the median reading score of pupils in higher or lower grades. They reveal that in Grade V, for example, 21 per cent of pupils were found to have reading attainments better than the median reading age for Grade VI, while of the less able, 15 per cent of pupils in this grade scored less than the median reading age for Grade IV, making a total 36 per cent of pupils in Grade V who are achieving above or below the median reading level of the pupils in the school grades next above or next below Grade V.

General agreement was found to exist between the results outlined above and other studies of this nature, as, for example, some undertaken with other pupil populations in Queensland.<sup>10</sup>

The extent of this overlap of attainments between grades can also be shown graphically by plotting the distributions for each along a common baseline of a frequency distribution. Diagrammatic examples of the overlap between consecutive grades and those separated by one year of schooling are given in Figures 5 and 6.

As would be expected, the overlap in achievements is greater when we compare two consecutive grades than when say Grades IV and VI are contrasted, though in the latter case it is still quite considerable.

#### IV

#### ***Significance of Results for the Teaching of Reading***

The foregoing analysis has demonstrated the extent of the range of reading attainments in primary school grades and the significant overlap of attainments that exists from grade to grade.

This range and overlap of pupil attainments has many implications for the teaching of reading. It should also be realized that this spread of achievements in reading, and in other scholastic areas, is due in part to factors related to the school, in addition to such important factors as the mental ability of the child.

#### *(a) Some Factors Affecting the Spread of Pupil Attainments*

##### *(i) Age of Entry to School*

Most education authorities prescribe that every child will receive a certain number of years compulsory education. In all Australian States this compulsory school period begins at six years of age, but children are admitted to schools at

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<sup>10</sup>One such study is reported in I. G. Meddleton, "Overlap in Test Scores and Its Relation to Remedial Teaching", *The Slow Learning Child* (Brisbane: University of Queensland Press), Vol. VI (1959), No. 2.



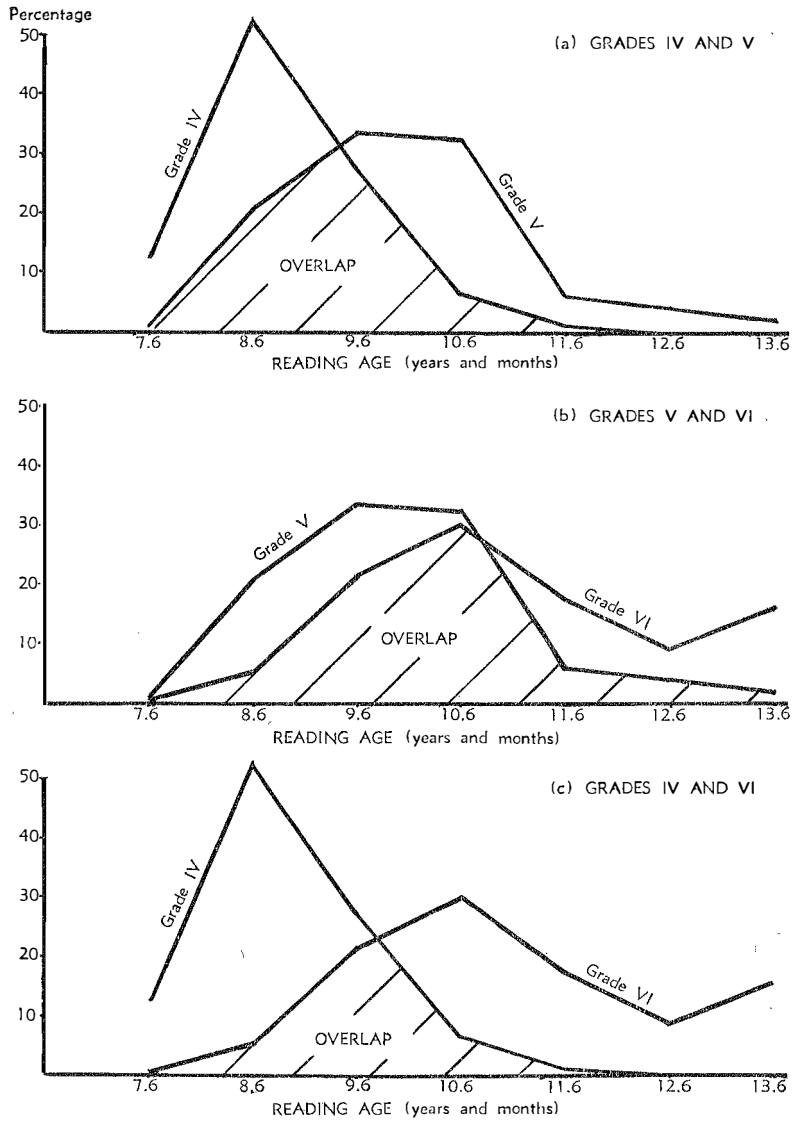


FIG. 5.—Overlap of reading attainments: Silent Reading Test B.

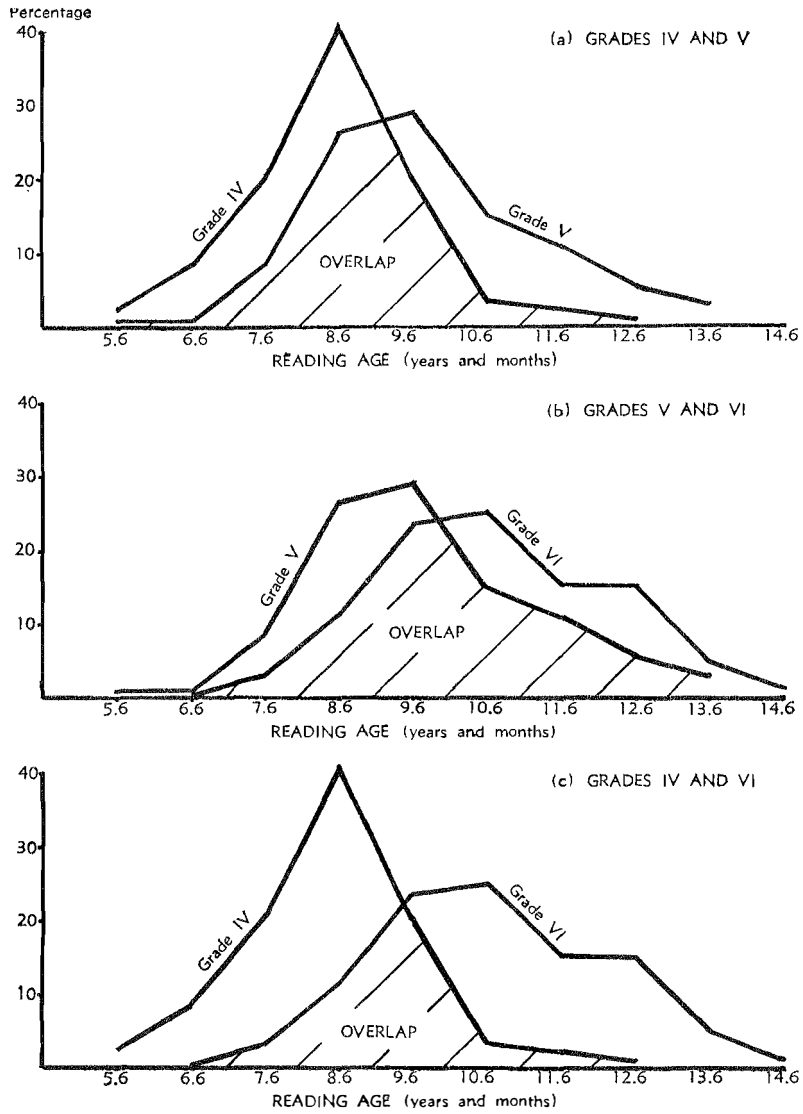


FIG. 6.—Overlap of reading attainments: Graded Word Reading Test.

various ages before this—even before 5 years—the actual age largely depending on local policy and availability of school accommodation. In general, pupils are enrolled at the beginning of the school year if they attain a minimum age (less than the compulsory age) on or before a certain day. This means that pupils attaining the minimum age soon after the approved date are required to wait for admission for nearly one year, while those attaining the minimum age shortly before can enrol with little delay. The parents of other boys and girls do not apply for them to enter school until they reach the compulsory age.

Thus in the first school classes there is a potential chronological age range of at least twelve months. Taking into consideration the differing patterns of physical and mental development among children, an age range such as this will mean a still greater variation in the age at which a child is ready to begin formal learning, as well as considerable variance in the amount of learning that has already resulted from childhood experiences. At entry to school, therefore, significant variations in pupil abilities and attainments already exist, given emphasis by the entry procedures followed by most education authorities.

(ii) *Promotion Policy*

To a large extent, Australian schools follow a policy of promotion by age. That is, nearly all pupils are promoted to the next class each successive year regardless of their school attainments. The brighter pupils are able to keep ahead of their classmates, while the dull, by and large, are unable to keep pace and fall further behind. In this way the range in pupil attainments increases year by year.

(iii) *Class Allocation*

The method adopted for allocating class groups at a particular grade level will also influence the range of achievements in any one class-room. The “streaming” of pupils according to their scholastic attainments, so that the brighter children are accommodated together, while the less able are also taught in a separate classroom, will tend to limit the range of attainments in any one of the groups. Streaming pupils in this way, however, is never likely to result in completely homogeneous groups. Some variation in attainments will always be present.

(iv) *Teaching Methods*

A further factor that influences the extent of the variation in attainment within school grades is the effectiveness of teaching methods in ensuring that all pupils progress at a rate commensurate with their ability. As pupils increase in maturity and scholastic achievement, some progress at a much faster rate than most, while at the same time, and under the same classroom conditions, others may progress relatively slowly. Teaching methods can affect the extent of the difference in the attainments and rate of progress of these two groups at the extremities of the class. If a teacher directs the class work at the level of the average child, the brighter pupils are still able to move ahead without being fully restricted by the teacher's approach, but the dull will be severely handicapped. Teaching techniques which ensure that all pupils, including the dull, progress at their maximum rate of achievement, will also help to increase the dispersion of attainments in the classroom.

(v) *Remedial Measures*

General and specific difficulties in school subjects will delay a pupil's progress. To a large extent, difficulties experienced by particular pupils in a subject can be remedied by the efforts of a conscientious teacher. Early diagnosis of the difficulty, followed by effective remedial teaching measures by the teacher, will enable the pupil to proceed with a minimum of delay, thus avoiding serious backwardness. Neglect in this regard, however, will increase the difficulties of the pupil as well as the problems of the teacher caused by a more extensive range of attainments within the classroom.

(vi) *Influence of External Examinations*

The extent of the variations in pupil achievement can also be influenced by the existence of pressures imposed on the school programme by the demands of external examinations. Largely, their effect is to force the average as well as the brighter pupils ahead while the dull lag further and further behind.

(b) *Implications for the Teaching of Reading*

It is apparent that teachers need to be acquainted with the variations in reading achievements in the classroom and to be aware that they represent differing pupil needs and make certain demands on his knowledge and skill, if the instruction in reading is to assist each child to progress satisfactorily in the development of his reading abilities. Thus there are important implications for classroom practice in the teaching of reading.

(i) *Organization of Classes*

Classes at any particular grade level in a school may be organized in a number of ways. One of these is the "streaming" of pupils into classes on the basis of their ability to cope with the work of the grade. As an alternative to this, some schools group pupils into classes on a comprehensive basis, so that pupils of all ability levels are to be found in each of the class groups at that grade level. Some would supplement this latter practice by a system of "in-class" ability groups. The findings of this investigation suggest that whatever method is adopted in the organization of classes, the variations that exist in pupil achievements need to be accounted for in some satisfactory manner. This will generally be accomplished by an adoption of teaching procedures that also take account of the type of class organization followed.

(ii) *Teaching Procedures*

Most teachers, at some time during their career, have found themselves following the rather common practice of teaching at the rate of progress of the average pupil in the class. Some never realize that this invariably means that the dull have little opportunity to learn, eventually become disheartened, and thus, beside dropping further behind in their scholarship, also become prone to the emotional conditions that accompany failure. At the same time, the brighter pupils find that the work at hand is well within their grasp, occupying only a relatively small portion of their time, and may then be subject to boredom for a considerable part of the days spent at school.

Teachers will realize the necessity to give as much individual attention to their pupils as is possible, offering enrichment for the bright, help for the dull, and encouragement to all. In this way, techniques of teaching will be so adjusted and organized that there will be differential treatment in approach to the learning problems of pupils of differing attainments yet within the same class group.

(iii) *Remedial Measures*

Another important implication of the results of this investigation for the teacher of reading is the need for remedial work with those pupils whose progress in reading is temporarily arrested. These delays can, in many cases, be lessened by classroom remedial measures, thus assisting the pupil to again make optimum progress in mastering the reading skills.

(iv) *Graded Materials*

The importance of well-graded reading materials is an obvious implication from this investigation. These materials, carefully compiled to increase in reading difficulty at a suitable rate, and also written at the interest level of the pupils concerned, need to be basic requirements for each classroom where reading is taught. Provision of this type envisages that the teacher will be able to draw upon reading materials that

allow more effective teaching procedures and remedial measures to be adopted; so that the brighter pupils can be extended, the average pupils assisted to progress at a rate commensurate to their ability, and the dull given reading instruction and practice suitable to their level of attainment.

## V

### **Summary and Conclusions**

This investigation was undertaken to yield evidence of the range of reading attainments existing in a number of primary school grades, and to show the extent of the overlap of reading attainments between school grades. The sample group chosen numbered 867 children who were enrolled in Grades IV, V, and VI, in three outer suburban schools of Brisbane.

The results of attainment testing demonstrated the actual distribution of pupil reading achievements in these grades and between grades. An examination of these distributions and the respective interquartile ranges to ascertain the extent of achievements in each grade revealed a dispersion of reading attainments that for Grade VI was nearly twice that in Grade IV. In the primary school grades studied, there was an average range of reading attainments of approximately four years as assessed by the Silent Reading Test B, and of nearly five years on the basis of the Graded Word Reading Test results.

A study of the overlap of reading attainments between grades revealed that a significant percentage of pupils in any one grade had reading attainments greater or less than the median scores for pupils in the grades next above and below, while a lesser percentage of pupils had attainments better or worse than the median score for grades two years above or below respectively. The full extent of the overlap of attainments between grades was demonstrated by use of super-imposed frequency distributions. These diagrammatically indicated the significant proportion of pupils in each grade whose attainments overlapped those of pupils in grades above or below.

A number of factors that affect the range and overlap of school attainments were discussed, and then, consequential to the findings of the investigation, attention was directed to some implications for the classroom teacher. These included the importance of suitable teaching procedures, remedial measures, and the materials used for classroom instruction.

### **Acknowledgments**

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## Appendix

### *Details of Tests Used*<sup>11</sup>

#### (i) *The Essential Junior Intelligence Test (Form A)*

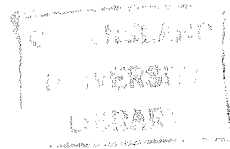
This test provides a measure of general intelligence for children aged from 7+ to 12+ years. After completion of the practice items under the direction of the test administrator, pupils are allowed forty-five minutes to work the test. When standardized,<sup>12</sup> this test had a validity coefficient of  $.91 \pm .01$  when compared to other valid tests of intelligence, and a reliability by the test-re-test technique of  $r = .91 \pm .02$ . The norms for this test are based on an English standardization.

#### (ii) *Silent Reading Test B*

This is a graded test of silent reading comprehension designed for children within the age range of 8 to 12 years. The test contains twenty paragraphs with forty-two multiple-choice questions to be attempted within a time limit of fifteen minutes. Tentative norms are available from a standardization of the test on approximately 10,000 Queensland children.<sup>13</sup> This testing programme yielded reliability figures for the test of  $r = .89 \pm .02$  by a test-re-test procedure.

#### (iii) *Graded Word Reading Test*

The Graded Word Reading Test consists of 100 selected words, graded in difficulty. The test is designed to give an estimate of the pupil's power of word recognition. There is no time limit for the test, and scoring is undertaken by totalling the correct responses and calculating reading ages by a formula. The standardization was undertaken in England.<sup>14</sup>



<sup>11</sup>All tests are published by Oliver and Boyd (Edinburgh) and are available in Australia through the Australian Council for Educational Research, Melbourne.

<sup>12</sup>See Schonell and Adams, *The Essential Junior Intelligence Test, Manual of Directions*.

<sup>13</sup>Available from Department of Education, University of Queensland.

<sup>14</sup>This test is fully discussed in F. J. Schonell, *The Psychology and Teaching of Reading* (4th ed.; Edinburgh: Oliver & Boyd, 1961).

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