

READING SKILLS AND SCHOOL ENTRANCE AGE

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IS there an association between reading disabilities in school children and early school entrance? How does a year of schooling at five years of age affect the level of reading skills achieved several years later?

Data on these separate, but related, questions are reported in this communication. Part I deals with reading retardation while Part II deals with the effect of early entrance on later reading skills.

I

A report by Cunningham (1) in 1948 of an outbreak of reading disability in Connecticut lends credence to the proposition that children who are sent to school at an early chronological age tend to develop reading disability more often than children who start school later. While the experience recorded by Cunningham is not conclusive in this respect, it is suggestive and in keeping with the thinking of those educational psychologists who believe that premature training hampers later learning.² This study is a further attempt to apply a limited test of this

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² e. g. "An example of what may happen to a child who is sent to school before he is ready to read is the case of a seven-year old boy who was referred to a clinic to determine whether he should . . . be sent to an institution for the feeble-minded.

" . . . His history showed that his mother had given his age incorrectly so that he might enter the school at five years.

" . . . At first the child showed some interest in reading, but made no progress. Gradually he began to associate failure and dissatisfaction with reading. . . ."

Merry, F. K. and Merry, R. V.: *THE FIRST TWO DECADES OF LIFE*. New York, Harper & Brothers, 1950. p. 500.

"The age of starting school, especially when viewed in the light of the child's M.A., may help to explain lack of success in primary reading."

Louttit, C. M.: *CLINICAL PSYCHOLOGY OF CHILDREN'S BEHAVIOR PROBLEMS*. New York, Harper & Brothers, 1947, p. 279.

proposition as it applies to a group of school-age children in certain small upstate New York communities.

The New York State Youth Commission, in connection with another study, arranged for the testing in April, 1948, of all children in the third, fourth, fifth, and sixth grade of twenty-four schools in Onondaga County outside the City of Syracuse. For most of the 3,662 children registered in these grades, the Youth Commission obtained: (1) reading achievement scores (Stanford School Achievement Test, Primary Battery Form B), (2) non-verbal IQ scores (California Test of Mental Maturity), and (3) chronological age at the time of testing. All tests were administered in the children's own school rooms according to a standardized procedure under the general supervision of the research staff of the Youth Commission. These data have been kindly made available through the courtesy of Lee Dowling, Executive Director of the New York State Youth Commission. Grateful acknowledgement is expressed to the Youth Commission for making these data available.

Subsequently, staff members of the New York State Mental Health Commission visited each of the twenty-four schools involved in the study and obtained school entrance ages for 3,183 pupils for whom test scores were available.³ In this study, those children whose reading age was 12 or more months less than their chronological age were labeled "retarded" in reading. The difference in entrance age between the "retarded" group and the "non-retarded" group may be evaluated by the following data:

	No.	Mean Entrance Age (Months)	S.D.
Retarded	973	71.07	11.08
Not "Retarded"	2,210	65.81	8.60
Total	3,183	67.42	9.73
	$t = 13.18$		$P < 0.001$

³ Grateful acknowledgement is hereby made to the District Supervisors and Principals who made this possible.

The more "retarded" in reading skills had an average entrance age later than the non-retarded. This finding throws doubt on the proposition that early school entrance generally leads to deficiency in the development of reading skills. However, it does not settle the issue conclusively because there are many serious limitations to the data organized here.

Factors other than those controlled in this study may have influenced these results. It is possible that systematic differences existed between the younger and older entrants in terms of (1) individual and family characteristics related to successful integration with the school system, and (2) the type of educational experience provided them by the schools.

We may speculate that more of the later entrants suffered from physical diseases which both delayed their school entrance and presented a handicap to later school adjustment and learning. Families of earlier entrants may be those who place a higher value on schooling and make active attempts to motivate their children to successful school achievement. On the other hand, more of the younger entrants may have had mothers who were working and found it difficult to establish a satisfactory home atmosphere. In those school systems which had kindergartens, it is reasonable to assume that more of the younger entrants were assigned to them, while more of the older children entered first grade directly.

The data of this study are not capable of ruling in or out any of these speculations.

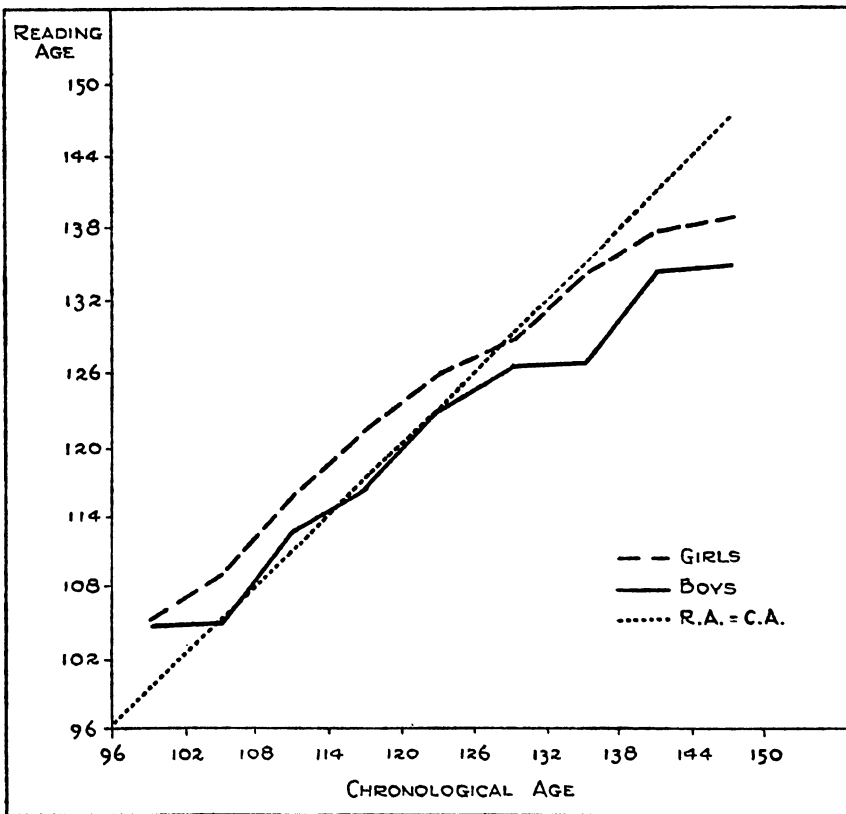
II

The finding that children "retarded" in reading skills had an average entrance age later than the non-retarded led to an attempt to use these data to make a more systematic and controlled appraisal of the value of early schooling to the development of reading skills in this group of children. In order to use these data for this purpose it is necessary to regard the school experience of these children in upstate New York as a unit of social experience. One must recognize that different schools

followed different practices. They were not under the same supervision and different schools may have varied greatly in the way they approached the older or the younger child on first entrance to the school system. However, assuming that schooling is an organized experience with variations: What is the effect of this experience for children of different ages in respect to the rate at which they develop reading skills?

The sample for this analysis consists of 2,556 of the children who first entered school in a fall semester between 54 and 83 months of age, and were at the time of testing between 96 and 155 months old. The reading ages of these pupils were cross tabulated by six-month entrance age groups (54-59, 60-65, etc.) and by six-month chronological age groups at time of test-

Fig. 1. Reading age by chronological age.

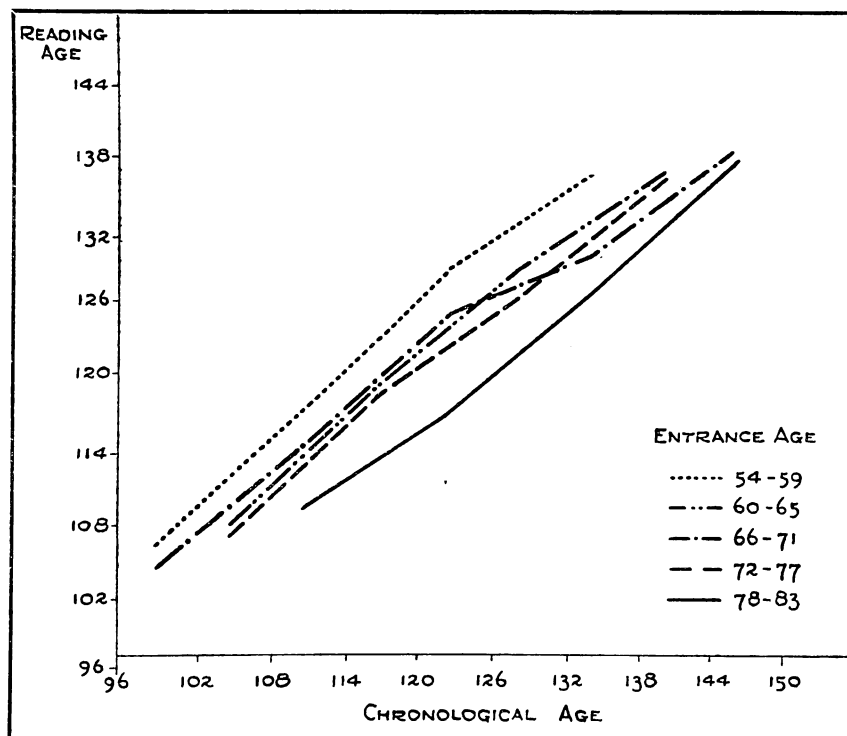


ing (96-101, 102-107, etc.). This type of cross tabulation was made separately by sex for each of three non-verbal IQ groups, IQ below 90, IQ 90-109, and IQ 110 or above. However, in this paper, only certain general findings will be reported.

Figure 1 shows the course of development of the mean reading age by chronological age for boys and girls separately. Also indicated is a line in which reading age = chronological age. Presumably this latter line would represent the normal population on which the reading achievement tests were standardized. It may be noted incidentally that the mean reading age of girls is higher than that of boys for each chronological age group. This sex difference in reading age is maintained within the lower and average non-verbal IQ groups, but is not as marked within the superior IQ group.

What happens to the reading ability of children who spend

Fig. 2. Reading age by chronological age for each entrance age (both sexes).



an additional year out of school as compared to children who spend the same year of their lives in school? Figure 2 indicates that the mean acquisition of reading skills is greater at each chronological age for the children who entered school earlier than for the children who entered school later. In general, the youngest entrance age group (54–59 months) scored highest and the oldest entrance age group (78–83 months) scored lowest for a given chronological age. This finding is confirmed within the low and average non-verbal IQ groups, but not for the superior IQ group.

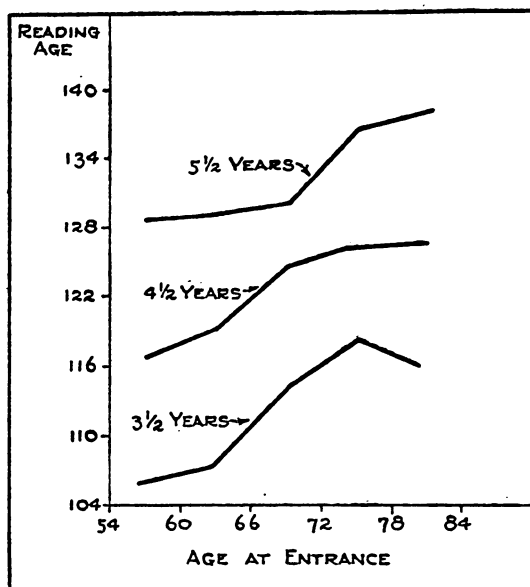


Fig. 3. Mean reading age scores by entrance age for different amounts of schooling (both sexes).

However, it may be seen that although the younger entrants score higher than the older entrants at each age, the magnitude of the difference is somewhat less than might be considered the natural outcome of the additional period of schooling which the younger entering children have had. For example, those who entered at 54–59 months do not exceed in reading ability those who entered at 66–71 months entrance group by a full 12 months of reading age, nor those who entered at 78–83 months by a full 24 months of reading age. Thus a unit of schooling is associated with less reading-ability increment when experienced at an earlier age.

From Figure 3, it appears that the effect of a given number of years of schooling as an investment in the acquisition of reading skills produces more reading achievement in children

who have entered school nearer their seventh birthday than on those entering near their fifth birthday. Although not shown in the chart, this finding holds for both boys and girls within each of the three IQ groups.

These findings suggest that children who start to school nearer their fifth birthday have more opportunity to realize their maximal capacity for reading ability than children who enter school later in life, in that the younger entrants to school in this population scored higher on the achievement test than the older entrants, when both groups had reached the age of 11.5 years. But this additional whole year of schooling between the ages of five and six is associated at age 11 years with less than 12 months additional points in reading score.

These findings are in conformity with the common sense notion that schooling is of value in the acquisition of reading skills, and is also in conformity with the common sense notion that a given quantity of organized school experience will advance reading skills more when applied at a later age in childhood than at an earlier age in childhood.

These findings throw no light on the question of how this extra year of schooling between the ages of 5 and 6 can best advance the reading skills of children. It simply provides us with additional evidence that this year of schooling can contribute materially to the ultimate level of reading skill achieved. One does not know enough about the conditions under which the schooling occurred in this population to draw any inferences about more and less desirable educational policy for the first year of school life. These data can be regarded as evidence that a year of school between 5 and 6 can, and, in this population in general did, lead to a higher level of reading skill at each age up to 12. Whether this advantage is maintained in later years cannot be determined from these data.

Entirely different types of studies would be required to secure more precise information as to the timing and type of school programs which facilitate reading achievement. It would be desirable to assign randomly half a group of five-year-

olds to begin schooling immediately and half to wait a year before starting, while assuring that the types of school experiences were comparable. More complex studies of this same type might investigate the effects of variations in the type and timing of reading instruction.

SUMMARY

Over 3,000 unselected school children, grades 3-6, were given a reading achievement test and a non-verbal IQ test during a few weeks. Their scores are related to school entrance age and to chronological age. It was found that (1) those "retarded" in reading had a mean entrance age 5.3 months later than other children, (2) those who entered school younger scored higher on reading achievement at each chronological age and for each IQ group, (3) older children scored higher than younger children who had the same number of years of schooling.

It is concluded that, under the age of 12, children who have had more years of schooling (that is, entered school younger) have higher average reading ability than children of the same age who have had less schooling.

REFERENCE

1. Cunningham, J. M.: Psychiatric Case Work as an Epidemiological Tool. *American Journal of Orthopsychiatry*, October, 1948, xviii, pp. 659-69.