

## SCHOOL READINESS

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# School Entry Age

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### **Introduction**

At what age should children enter formal schooling? Practices vary widely across countries and localities within countries, and even among families within small communities. The empirical question concerns the age at which children are emotionally and intellectually ready for a formal school program.

### **Subject**

Policy-makers debate the age at which school entry should be allowed, and when it should be required. Many parents struggle with the question of whether they should send their children to school as soon as they are eligible, or keep them out for another year to increase their likelihood of success. This report summarizes evidence on the effects of the age at which children enter school on their social and academic development.

### **Problems**

Identifying the appropriate age for children to enter school is complicated by the fact that children do not all develop at the same pace. Substantial variation in “readiness” will be found regardless of the age at which children are allowed to enter school. Readiness for school also varies as a function of children’s experiences proper to school entry. Children who have had extensive

experience in group day care or other early childhood education programs may be more comfortable and better prepared to handle school than their age-mates who have had little experience in such settings. Age, therefore, will always be a weak predictor of readiness.

## **Research Context**

Three strategies have been used to assess the effects of the age of school entry on children's academic achievement, and occasionally on social-emotional or motivational outcomes. First, studies have compared outcomes for children who have delayed entry by a year with children who entered school when they were eligible. A second methodological strategy is to simply compare children in the same grade with different birth dates. In any one grade, there is at least a 12-month spread in ages. Assuming that children's birth dates are randomly distributed, associations between this natural variation in age of entry and child outcomes suggest an age effect. Few of the studies using this methodology assess change in achievement over the school year; they therefore cannot be used to determine whether older children benefit relatively more from schooling (i.e. make greater gains) than do younger children. They do, however, provide information on whether older children perform better on average than younger children. The third and most powerful strategy compares children who are the same age but in different grades, as well as children who are a year apart in age but in the same grade. This strategy provides information on the relative effects of an additional year of time (maturation and general out-of-school experience) versus an additional year of schooling.

## **Research Results**

*Delayed entry.* Studies examining children who have delayed their entry into school by a year are difficult to interpret because there is a selection bias in which children parents decide to hold out of school for a year. The findings of studies that compared children who were held out to those who began school when they were eligible are not consistent. If differences between the groups in child outcomes are found, whatever the direction, the differences are modest.

*Age differences.* The findings of studies that compare children who are relatively old versus young for their grade also vary somewhat, although a fairly clear picture emerges. Most studies report differences in the beginning grades of school that favour older children,<sup>2,3</sup> and some studies report differences in the later elementary grades.<sup>2-4</sup> But a few studies found no difference<sup>2-4</sup> in some or all achievement tests, even in kindergarten.<sup>5,6</sup> In most of the studies that found significant age

differences in the early grades, the differences were weaker<sup>7-9</sup> or disappeared altogether by the upper elementary grades.<sup>6,10-13</sup>

In summary, these studies suggest some small advantage in being relatively older than classmates, but the advantage diminishes or disappears with age. The findings do not suggest that being older is better in some absolute sense. All of these studies used relative age as the independent variable. Depending on the birth-date cut-off in the state or community, a relatively old child in one study could have been an average-aged child in another study. The findings also do not suggest that older children learn more in school than younger children. The age differences, when found, were usually stronger at the beginning of school than in the later grades, indicating that the younger children actually tended to learn more, often catching up with their older peers after a few years in school. Even in the early elementary grades, the magnitude of the effect of age appears to be small. Most studies do not compare age to other factors influencing student achievement, but in one that did, the proportion of risk of poor achievement attributed to race and socioeconomic factors was 13 times larger than that contributed by age.<sup>9</sup>

*School versus time to mature.* Most relevant to the question of school entry age are studies comparing children who are the same age but in different grades *and* children who are in the same grade but approximately a year apart in age. The first comparison provides information on the effect of a year of schooling, holding age constant. The second comparison provides information on the effect of chronological age, holding the number of years of schooling constant.

Findings from studies using these methods suggest that schooling is the more potent variable in most of the cognitive skills measured. In math and most aspects of reading and literacy in most studies, children who were in school gained more in a year than children the same age who were not in school.<sup>14-20</sup> The evidence also suggests that age, at least in the ranges studied, was not a factor in how much children benefited from a year of schooling.<sup>18,19</sup>

The studies comparing age and school effects suggest that educational intervention found in schools contributes more to children's cognitive competencies overall than does maturation, and that relatively young children benefit from school as much as relatively older children. The school effect is strong in an absolute as well as a relative sense. In the Crone and Whitehurst study,<sup>20</sup> for example, a year in school explained 62% of the literacy skill improvements at the kindergarten level, and 81% in second grade. Cahan and Cohen<sup>14</sup> report that the effect of a year in school was twice the effect of a year of age.

## **Conclusion**

The evidence suggests that within the five- to six-year-old range in which most children begin school in the U.S. (where most of the studies cited were conducted), age is not a significant predictor of ultimate academic success. Extant research does not support recent trends in the U.S. to raise the age at which children are eligible to begin school (e.g. from turning five by December of the year a child enters kindergarten to turning five in September or earlier). To the contrary, time in school appears to contribute more to young children's academic skills than time engaged in other activities outside of school. Research on day care and early childhood education also suggests advantages of centre care for children in the preschool years.<sup>21</sup> It is, therefore, clear that children benefit from some form of educational program at a very early age.

Many early childhood experts have called into question the very notion of "school readiness." Clearly, all children at all ages are "ready to learn." The meaningful question is not whether a child is ready to learn, but rather what a child is ready to learn. Even "reading readiness" – a concept with a long history in early childhood development – has little meaning in the context of current conceptualizations of emerging literacy, which includes general knowledge, language and vocabulary skills, and even early scribbling. Literacy, according to current experts, begins to develop long before children enter school.<sup>21,22</sup> Current conceptions of mathematics also embrace the notion of gradual development that begins early in life. Recent work on the development of mathematical understanding shows that an understanding of basic number concepts is seen and can be promoted in toddlers.<sup>23</sup> The important policy issues are how to give all young children access to educational programs, and how to make sure that school programs are appropriate for the particular social and academic skills of the children in them.

## References

1. Stipek D. At what age should children enter kindergarten? A question for policy makers and parents. *SRCD Social Policy Report* 2002;16(2):3-16.
2. Cameron MB, Wilson BJ. The effects of chronological age, gender, and delay of entry on academic achievement and retention: Implications for academic redshirting. *Psychology in the Schools* 1990;27(3):260-263.
3. Crosser SL. Summer birth date children: Kindergarten entrance age and academic achievement. *Journal of Educational Research* 1991;84(3):140-146.
4. Breznitz Z, Teltsch T. The effect of school entrance age on academic achievement and social-emotional adjustment of children: Follow-up study of fourth graders. *Psychology in the Schools* 1989;26(1):62-68.
5. Dietz C, Wilson BJ. Beginning school age and achievement. *Psychology in the Schools* 1985;22(1):93-94.
6. Kinard EM, Reinhertz H. Birthdate effects on school performance and adjustment: A longitudinal study. *Journal of Educational Research* 1986;79(6):366-372.
7. Langer P, Kalk JM, Searls DT. Age of admission and trends in achievement: A comparison of Blacks and Caucasians. *American Educational Research Journal* 1984;21(1):61-78.

8. Sweetland JD, De Simone PA. Age of entry, sex, and academic achievement in elementary school children. *Psychology in the Schools* 1987;24(4):406-412.
9. Jones MM, Mandeville GK. The effect of age at school entry on reading achievement scores among South Carolina students. *Remedial and Special Education* 1990;11(2):56-62.
10. May DC, Welch E. Screening for school readiness: The influence of birthday and sex. *Psychology in the Schools* 1986;23(1):100-105.
11. Bickel DD, Zigmond N, Strayhorn J. Chronological age at entrance to first grade: Effects on elementary school success. *Early Childhood Research Quarterly* 1991;6(2):105-117.
12. McClelland MM, Morrison FJ, Holmes DL. Children at risk for early academic problems: The role of learning-related social skills. *Early Childhood Research Quarterly* 2000;15(3):307-329.
13. Stipek D, Byler P. Academic achievement and social behaviors associated with age of entry into kindergarten. *Journal of Applied Developmental Psychology* 2001;22(2):175-189.
14. Cahan S, Cohen N. Age versus schooling effects on intelligence development. *Child Development* 1989;60(5):1239-1249.
15. Ferreira F, Morrison FJ. Children's metalinguistic knowledge of syntactic constituents: Effects of age and schooling. *Developmental Psychology* 1994;30(5):663-678.
16. Varnhagen CK, Morrison FJ, Everall R. Age and schooling effects in story recall and story production. *Developmental Psychology* 1994;30(6):969-979.
17. Bisanz J, Morrison FJ, Dunn M. Effects of age and schooling on the acquisition of elementary quantitative skills. *Developmental Psychology* 1995;31(2):221-236.
18. Morrison FJ, Smith L, Dow-Ehrensberger M. Education and cognitive development: A natural experiment. *Developmental Psychology* 1995;31(5):789-799.
19. Morrison FJ, Alberts DM, Griffith EM. Nature-nurture in the classroom: Entrance age, school readiness, and learning in children. *Developmental Psychology* 1997;33(2):254-262.
20. Crone DA, Whitehurst GJ. Age and schooling effects on emergent literacy and early reading skills. *Journal of Educational Psychology* 1999;91(4):604-614.
21. Bowman BT, Donovan MS, Burns MS, eds. *Eager to learn: Educating our preschoolers*. Washington, DC: National Academy Press; 2001.
22. Snow CE, Burns SM, Griffin P, eds. *Preventing reading difficulties in young children*. Washington, DC: National Academy Press. National Research Council. Commission on Behavioral and Social Sciences and Education; 1998.
23. Griffin S, Case, R. Re-thinking the primary school math curriculum: An approach based on cognitive science. *Issues in Education* 1997;3:1-65.