Children, Schools, and Inequality

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Elementary School Organization

It is no accident that the rise of universal schooling in the 19th century parallels the social recognition of childhood as a clearly demarcated period in the life span. In the 20th century, the distinctiveness of many other life periods has faded, but not that of middle childhood, mainly because elementary schools match the physical and cognitive capacities of youngsters in this age range. In fact, over this century as the age of menarche declined from an average of 14 years to about 12.6 years (Tanner 1973), the organization of schools has responded. Since 1960 the number of grades in elementary schools has decreased from 6 to 5 or 4, as middle schools have replaced junior highs. Still, how the structure of schools maps onto children's development has traditionally been more of an administrative than a scientific concern.

This chapter examines issues related to how elementary school organization affects children's development. Because elementary schools seem to have a simple flat plan of organization—a string of self-contained classrooms with individual teachers—their structure has prompted relatively little sociological research, the main exception being studies of ability grouping. Nevertheless, these schools do have complicated organizational patterns. In the first place, because elementary schools reflect the characteristics of the neighborhoods in which they are located, students are tracked between schools by socioeconomic status (Dauber et al. 1993; Entwisle and Alexander 1993). Then, within schools tracks emerge starting in first grade: children are held back and placed in Special Education and both of these administrative decisions often segregate students by classrooms and by age. Within classrooms, children are usually also grouped for instruction in reading and sometimes in math. The upshot is that socioeconomic status tracks children by school, administrative decisions...
track students into separate classes within schools and instructional grouping tracks children within classes. The purpose here is to examine how such facets of school organization affect students' development in both the near and the longer terms.

**Socioeconomic Status and Tracks Between Schools**

Elementary schools appear to have the same general structure because the topics covered in their curriculum look much the same across grades and across schools. With the exception of grouping within classes, society perceives them as "untracked"—one program fits all. The major thesis of this chapter is that this perception is wrong: elementary schools are not the same, they are rigidly tracked by family socioeconomic status level and by administrative fiat. Their tracks are not labeled as such, however, perhaps because society prefers to repress them from view.

**Variability Between Schools**

The small size of elementary schools, plus their 3R's curriculum helps support the myth that all have the same structure, and that not until middle school does "tracking" begin. Quite the opposite is true, however.

The variation in socioeconomic level between elementary schools actually outstrips that between secondary schools. In 1990-91, for example, the proportion of Baltimore children participating in the subsidized meal program varied across elementary schools on average from 5% to 100%, but varied only from 8% to 65% across high schools (Baltimore City Public Schools 1991). This greater socioeconomic variation across elementary schools is mainly a consequence of their small catchment areas which differ sharply by family income level. Neighborhoods, in other words, differ in terms of the socioeconomic status of the families that inhabit them and therefore so do their elementary schools. The correspondence between socioeconomic level of neighborhoods and schools is illustrated by Table 4.1 which ranks the 20 Beginning School Study schools by the average number of students on meal subsidy, an indicator of the average socioeconomic status level of students' families. This ranking corresponds well to 3 measures of neighborhood socioeconomic status: median household income, percentage of families below the poverty level, and the percentage of workers with professional or managerial jobs. The rank order correlations between meal subsidy level and the neighborhood indicators are: .86 (median household income), .66 (percentage of workers with high status jobs), and .83 (family poverty level).

<table>
<thead>
<tr>
<th>Neighborhood Characteristics</th>
<th>% Families Below Poverty</th>
<th>% Workers Professional/Managerial</th>
<th>$ Median Household Income (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltimore City Public Schools 1991</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Table 4.1 Mean California Achievement Test (CAT) Reading and Math Scores when Beginning School Study Students Begin First Grade and at the End of Year 5 and Neighborhood Characteristics* |
|---------------------------------|----------------|----------------|----------------|----------------|
| Students in School on Meal Subsidy | CAT Math Score | CAT Reading Score | End YR 3 | YR 5 |
| 15%                            | 92             | 136             | 102          | 99             |
| 20%                            | 57             | 115             | 105          | 100            |
| 8%                            | 126             | 177             | 105          | 100            |
| 25%                            | 57             | 115             | 105          | 100            |
| 30%                            | 57             | 115             | 105          | 100            |
| 35%                            | 57             | 115             | 105          | 100            |
| 40%                            | 57             | 115             | 105          | 100            |
| 45%                            | 57             | 115             | 105          | 100            |
| 50%                            | 57             | 115             | 105          | 100            |
| 55%                            | 57             | 115             | 105          | 100            |
| 60%                            | 57             | 115             | 105          | 100            |
| 65%                            | 57             | 115             | 105          | 100            |
| 70%                            | 57             | 115             | 105          | 100            |
| 75%                            | 57             | 115             | 105          | 100            |
| 80%                            | 57             | 115             | 105          | 100            |
| 85%                            | 57             | 115             | 105          | 100            |
| 90%                            | 57             | 115             | 105          | 100            |
| 95%                            | 57             | 115             | 105          | 100            |

*Neighborhood SES measures are for the neighborhood in which the school is located. See Appendix B for full definition.
Beginning School Study students who lived in the better-off Baltimore neighborhoods began school with higher test scores than students who lived in the poorer neighborhoods (Table 4.1). For instance, of the 20 Study schools, which were randomly selected to participate in the study, the school with only 11% of students on subsidized meals enrolled children whose average California Achievement Test score in reading comprehension at the beginning of first grade was 302 and average math concepts score was 316. However, in the school with 90% of students on subsidized meals, reading scores averaged 265 (37 points lower, about .9 S.D.'s) and math scores averaged 273 (43 points lower, about 1.3 S.D.'s). The rank-order correlations between the percentage of first-grade students on meal subsidy in a school and students' average reading and math California Achievement Test scores when they began first grade are .65 in reading and .72 in math.

The achievement test differences across Beginning School Study schools when children began formal schooling enlarged as children progressed up through the grades. By the end of year 5, the average difference in standardized test scores between Beginning School Study children in the highest and lowest socioeconomic status schools was 66 points in reading and 48 points in math.

As would be anticipated, the figures for all Baltimore City elementary schools show the same patterns as those in the 20 Beginning School Study schools. The gradient in children's reading achievement across schools follows the gradient in meal subsidy. In schools with 50% or fewer of students on meal subsidy, children were reading at grade level 3.19 by the end of grade 2 and over one year above grade level (7.15) by the end of grade 5 (first column, Table 4.2). In schools where 89% or more of students were on subsidy (last column, Table 4.2), children were reading at half a year below grade level at the end of grade 2, and slightly below grade level at the end of grade 5. The gap in reading achievement between the highest and lowest socioeconomic status schools in Baltimore increased between the end of grade 2 and grade 5 from about 2/3 of a grade level to 1 1/3 grade levels three years later.

Other studies also reveal strong patterns of socioeconomic stratification across elementary schools (see e.g., Rosenberg 1979). Although it tends to be overlooked, the Coleman Report (1966) also shows this stratification clearly. Based on a nationwide sample of over 400,000 children, it found greater school-to-school variability in standardized test scores for children in their elementary years (grades 1, 3, 6) than for children in their secondary years.
Socioeconomic Status and Children's Learning

In spite of the pronounced variation in their standardized test scores by socioeconomic status when Beginning School Study children started first grade, those of different socioeconomic status levels progressed at the same rate during first grade, as we saw in Chapter 3. In winters (when school was in session) the yearly gains of the children in the high and low socioeconomic status groups were equivalent. We saw the same seasonal patterns in school-level data. When the 20 Beginning School Study schools were divided into two groups—the top 10 schools in terms of percentage of students on meal subsidy and the bottom 10 schools—students in the "low" schools gained even more in reading over second grade than did students in the "high" schools (51 versus 39 points). These data lend strong support to the conclusion that students' gains in achievement when school is open are equivalent irrespective of family economic status.

Socioeconomic Stratification and School Contexts

For a long time it has been known that secondary students' track placement is not simply a consequence of youngsters' prior achievement or ability (Kilgore 1991), and often follows social class lines (Heyns 1978, Jencks et al. 1972; Alexander, Cook, and McDill 1978). The perceived single curriculum of the elementary school, however, has tended to conceal the extreme tracking between elementary schools that actually exists. This variation by socioeconomic status leads to differences in how elementary schools function. Parents, aware of these school differences, use many strategies, including illegal ones, to get their children into high socioeconomic status schools. Mainly they try to locate their households in the most exclusive residential area they can possibly afford, but they also use private schools, and sometimes even pretend a child is living at one address (perhaps that of an aunt) while actually living at another.

As Table 4.4 shows, parental concern is justified because the marks teachers give children follow the socioeconomic status gradient of the neighborhood. In schools where 30% or less of children are on meal subsidy, the first reading mark children see is generally 2.0 (C) or better. In schools where more than 30% of children are on subsidy, these marks generally are in the 1.0 to 2.0 range and in the majority of these schools, no one received a mark above C. (Those who get 1's are failing.) In the school with 88% of children on subsidy, all Beginning School Study students got a failing mark in the first quarter of first grade. Of the 11 schools with 50% or more of children on subsidy, in only two were children's average marks in reading better than 2.0 (C). Nevertheless, as we saw, children in the low socioeconomic status schools make test score gains over first grade when school is in session as large as those made by children in high socioeconomic status schools.

Children in low socioeconomic status schools are thus perceived differently and treated differently from children in high socioeconomic status schools, even though they are doing equally well. The school climates linked to socioeconomic status are not a consequence of children's actual progress because, when school was open, children in schools of all socioeconomic status levels gained equal amounts on standardized tests of achievement in both reading and math. The differences by socioeconomic status in marks and expectations are not triggered by differences in the children's actual progress in school. Children are being marked in terms of where they live rather than in terms of how they have performed in their school.

These same patterns characterize teachers' expectations. At the end of grade one when teachers were asked to predict their students' performance in grade two, in the top 10 schools, first grade teachers generally expected their pupils in the next school year to get more A's and B's than C's or below in reading, while teachers' expectations in the bottom 10 schools were for almost all children to get C's or below.

Parents' perceptions of their children's performance also differed according to the socioeconomic status of the school (see Table 4.4). Parents' expectations for their children's first marks in reading, which were ascertained either shortly before or just after school began in September of 1982, before any report cards were issued, show a gradient by meal subsidy level of the school. When average expectations are calculated for the top and bottom socioeconomic status schools, parents in the "top" schools expected children
to get 2.74 in reading, while parents in the bottom schools expected somewhat less—2.59.

 Teachers’ treatment of children reinforced these differential parents’ expectations. In the top 10 schools, children’s first reading marks averaged 2.12 (a little better than a C). In the bottom 10 schools, first reading marks were only 1.62 (about 40% of the children were failing). Similarly in math in the top 10 schools, the average mark (2.46) was halfway between a “C” and a “B”, but “C” (2.00) in the lower 10 schools.

Beginning School Study teachers’ ratings of children’s classroom behavior also corresponded to the socioeconomic level of the school (Table 4.4). When first-grade teachers rated their students in terms of interest and participation in class, teachers in the school where only 11% of children were on meal subsidy rated their pupils about one standard deviation higher in interest/participation than did teachers in the school where 90% of children were on subsidy. The rank-order correlation between school meal subsidy level and teachers’ average interest/participation rating of students is .71. Furthermore, in the schools with high percentages of children on subsidy, some children were literally rated as being "off the scale," i.e., 3 S.D.’s below their school’s mean on interest and participation. No student was rated off the scale in the more affluent schools.

The picture becomes more disturbing the longer children are in school. Only 47% of children in the Beginning School Study who started first grade in a school where more than 90% of students were on subsidy had reached fifth grade five years later because 53% had either been retained or placed in Special Education. By contrast, 77% of those who started first grade in schools where 50% or less of the children were on subsidy were in fifth grade five years later.

Clearly, where children start elementary school effectively places them on a track. Children of high socioeconomic status have relatively high test scores as they begin first grade and are grouped together. Children of low socioeconomic status levels have relatively low scores when they begin first grade and they are grouped together. The same schools then report the highest and lowest scores at the end of elementary school (see Table 4.1), despite the fact that when schools were open, children of all socioeconomic levels progressed at the same rate; that is, children gained the same amounts on standardized tests over the school year irrespective of socioeconomic level and initial test scores in their school. Their socioeconomic status did not affect the rate at which children progressed while in school, but out-of-school, either before first grade or in summer when school was closed, socioeconomic status level did affect rates of progress. Because of these seasonal patterns, for the
Table 4.5  Overlap of First Grade and Middle School Track Placements

<table>
<thead>
<tr>
<th>First Grade Placements</th>
<th>6th Grade English Level</th>
<th>6th Grade Math Level</th>
<th>% Taking Foreign Language</th>
<th>Number of Low Courses</th>
<th>Number of High Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Low</td>
<td>% Reg</td>
<td>% High</td>
<td>(N)</td>
<td>% Low</td>
</tr>
<tr>
<td>Special Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>62</td>
<td>30</td>
<td>8</td>
<td>(64)</td>
<td>53</td>
</tr>
<tr>
<td>No</td>
<td>37</td>
<td>40</td>
<td>23</td>
<td>(413)</td>
<td>15</td>
</tr>
<tr>
<td>Eta^</td>
<td>.18***</td>
<td>.28***</td>
<td>.15***</td>
<td></td>
<td>.24***</td>
</tr>
<tr>
<td>Retained</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>67</td>
<td>31</td>
<td>2</td>
<td>(88)</td>
<td>51</td>
</tr>
<tr>
<td>No</td>
<td>35</td>
<td>41</td>
<td>25</td>
<td>(389)</td>
<td>13</td>
</tr>
<tr>
<td>Eta^</td>
<td>.28***</td>
<td>.35***</td>
<td>.25***</td>
<td></td>
<td>.36***</td>
</tr>
<tr>
<td>Reading Group</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lowest</td>
<td>62</td>
<td>26</td>
<td>13</td>
<td>(78)</td>
<td>50</td>
</tr>
<tr>
<td>Intermediate</td>
<td>43</td>
<td>46</td>
<td>10</td>
<td>(153)</td>
<td>17</td>
</tr>
<tr>
<td>Highest</td>
<td>26</td>
<td>36</td>
<td>38</td>
<td>(137)</td>
<td>7</td>
</tr>
<tr>
<td>Eta^</td>
<td>.33***</td>
<td>.38***</td>
<td>.23***</td>
<td></td>
<td>.35***</td>
</tr>
<tr>
<td>Number of Low Placements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>32</td>
<td>43</td>
<td>25</td>
<td>(263)</td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>41</td>
<td>41</td>
<td>18</td>
<td>(61)</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>70</td>
<td>22</td>
<td>8</td>
<td>(40)</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>78</td>
<td>22</td>
<td>0</td>
<td>(18)</td>
<td>78</td>
</tr>
<tr>
<td>Eta^</td>
<td>.28***</td>
<td>.41***</td>
<td>.23***</td>
<td></td>
<td>.37***</td>
</tr>
</tbody>
</table>

**p ≤ .01 level  ***p ≤ .001 level  
Eta coefficient, calculated from the cross-classifications in the table, measures association analogous to a product-moment correlation.
Beginning School Study children, correlations are .41 and .55 respectively, between initial California Achievement Test scores in reading and math in the fall of first grade and scores on higher levels of the same tests at the end of elementary school. The stratified outcomes later in the educational pipeline can be forecast surprisingly well from the stratification patterns visible in first grade (see also Kerckhoff 1993; Alexander and Entwisle 1996b). These patterns, however, are a consequence of what children learn outside school.

The stratification patterns established in elementary school continue afterwards. Children who have the highest test scores at the end of elementary school take algebra and a foreign language in middle school, and so end up with the needed prerequisites (algebra and language skills) to move into the college preparatory program in high school, while those with low scores at the end of elementary school do not get into these high level courses (Dauber, Alexander, and Entwisle 1996). (See Table 4.5.) For example, 62% of children placed in the lowest reading group in a first grade classroom took "low level" English in sixth grade. Likewise, 51% of the children who had been retained in first grade are in "low math" in sixth grade.

Socioeconomic differentials by school match the fault lines in the larger society. Schools in high and low status neighborhoods have different marking standards and treat students differently at a time in life when rates of cognitive growth are extremely rapid. The equivalence in children's progress when schools are in session is completely obscured.

Socioeconomic Stratification and School Organization

The last section reviewed data that show teachers' and parents' perceptions of children relate to the socioeconomic status level of the school. This section takes up a different set of issues: the variation in the organizational structures of elementary schools associated with neighborhood socioeconomic status. As noted, all elementary schools are perceived as being organized along the same lines, but in fact they are not.

Grade Patterns

In low socioeconomic status elementary schools, irregular grade structures are a particular hazard. Elementary schools (N=118) in Baltimore generally have grade structures that cover five or six grades plus kindergarten and perhaps pre-kindergarten, but at least 10 other organizational patterns existed when Beginning School Study students were attending these schools (K-3; PK-K; PK-2, PK-3; 3-5, 4-6, 1-5; K-8; PK-8; K-12). The problem with non-standard grade structures is that they usually require students to make "extra" transitions. For example, children in PK-2 or PK-3 schools had to transfer to another elementary school to complete grades 3, 4 and 5. The Baltimore elementary schools with non-standard grade patterns had proportionately more children on subsidy (80% versus 67%), with most having irregular grade structures (10 out of the 14) located in the poorest City neighborhoods (over 40% of residents in poverty). (See Figure 4.1 for locations of schools with non-standard grade structures.)

Making extra school transitions was thus a burden imposed more often upon low than upon high socioeconomic status children. The cost of these "extra" moves is not trivial: school transitions are difficult hurdles for children (Simmons and Blyth 1987; Alexander, Entwisle, and Dauber 1994), and among Beginning School Study students, retention rates over the first 5 years of school were significantly higher for students who did not stay in the same elementary school all the way through (50% versus 35%). Although research on school moves is thin, evidence is mounting that such moves have serious and long-term effects.

Disorderly Transitions

Another kind of transition is also more common for low than for high socioeconomic status youngsters. Low socioeconomic status families move more often, and the timing of these moves often requires children to transfer between schools at times that interfere with their schooling (McLanahan and Sandefur 1994). The serious consequences of school moves are made clear by Teachman et al.'s (1996) report that all of the benefits of attending Catholic schools for youngsters in the NELS sample can be explained by the negative relationship between family moves and attendance at parochial schools. Undoubtedly, it is not just moving or not moving that leads to this difference because families who move less are better-off, more integrated into their neighborhoods and so on, but changing schools is still hard for children. Beginning School Study children who were poorer moved more often than their better-off peers, for example. Of those who made two or more school moves in their elementary years, 88% were on meal subsidy compared to 65% of those who did not move. In addition, these moves were made within the school year almost twice as often as in the summer (between school years). In year 4, for example, of 92 within-system moves, 57 (62%) were within-year transfers (Table 4.6).

Moves are difficult because youngsters must adjust to a new neighborhood, new school, new teachers, new classmates, and a new physical plant with few
Figure 4.1 Percent of Persons Below Poverty Level in Baltimore City Neighborhoods Containing Elementary Schools with Non-Standard Grade Organization (1987-88) *

Table 4.6 Number of School Moves per Year Within Baltimore Schools and Out of Baltimore Schools for Beginning School Study Sample

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of BSS students in BCPS in the fall</td>
<td>767</td>
<td>745</td>
<td>693</td>
<td>631</td>
<td>605</td>
</tr>
<tr>
<td>Stayers (through the following fall)</td>
<td>663</td>
<td>616</td>
<td>547</td>
<td>520</td>
<td>524</td>
</tr>
<tr>
<td>Percent Who Moveb</td>
<td>13.6%</td>
<td>17.3%</td>
<td>21.1%</td>
<td>17.6%</td>
<td>13.4%</td>
</tr>
<tr>
<td>Type of Movec</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within-year, within system transfers</td>
<td>64</td>
<td>68</td>
<td>65</td>
<td>57</td>
<td>50</td>
</tr>
<tr>
<td>Between-year (summer) within system transfers</td>
<td>34</td>
<td>31</td>
<td>41</td>
<td>35</td>
<td>---</td>
</tr>
<tr>
<td>Transfers outside City system</td>
<td>22</td>
<td>52</td>
<td>62</td>
<td>26</td>
<td>37</td>
</tr>
<tr>
<td>Total Moves</td>
<td>120</td>
<td>151</td>
<td>168</td>
<td>118</td>
<td>87</td>
</tr>
</tbody>
</table>

* Except in Year 5, where moves are tracked only through the spring.

b Percent who move in a given year is (1 - No. Stayers/No. in BCPS).

c Individual moves are categorized as to whether they occur (1) during the school year, or (2) over the summer, or (3) are transfers out of City system. One student may have more than one move per year, so total moves exceed number of movers.

or no institutional supports to help. Even orderly transitions like that from elementary to middle school are disruptive and challenging (Simmons and Blyth 1987), but because these moves are expected, the school and family are at least partially mobilized to smooth the student’s way, with allowances made for need to readjust to new rules and a new curriculum. It is hard for teachers to accommodate students who make unscheduled moves in the middle of the school year because the curriculum and the pace at which it is covered usually differ from one school to the next (Barr and Dreeben 1983). New students not only disrupt the teaching schedule—they create a feeling of restlessness and upheaval in the classroom because they don't know the rules. With many students coming and going all year long, as happens in poverty areas, teachers

* Neighborhood boundaries and percent of persons below poverty level are for Regional Planning Districts in which Beginning School Study schools were located (Regional Planning Council 1983).

b Percent in poverty is for the Census tract where the school is located (U.S. Bureau of the Census 1983).
find it necessary almost continuously to "re teach," "back track" and in other ways try to catch new students up to the class (Lash and Kirkpatrick 1990).

In the BSS, the link between meal subsidy, household moves, and deficits in school performance is clear. Students who had lower test scores and other problems moved more than others. Beginning School Study children who moved two or more times within the system began first grade with California Achievement Test scores from one quarter to one half of a standard deviation below those of children who did not move later on, for example. Those who moved during their first 5 years of school were absent in the fifth year 13 days compared to 10 days for children who had not changed schools. Those who moved the most also started school with other serious problems. The conduct marks at the beginning of first grade for future frequent movers (3 or more moves), for example, were very low: 45% needed improvement versus 20% of the children who did not move. Even in the first year the frequent movers were absent more (18 days compared to 12). Also, as noted, retention rates over the first five years of school were significantly higher (50% versus 35%) for those who moved.

Clearly, moving within the school system during the school year greatly compounds the problems that already plague poor children, but unlike many other aspects of poverty, schools themselves could reduce the problems that poor students face when they make disorderly transitions. Specific practices to help students weather within-year moves might include: letting students commute to their old school until the summer break; providing for them extra counseling to help them adjust in the new school; helping teachers deal with students who move; educating parents about the hazards of within-year moves; making parents aware of how to provide children with extra support when they move.

The Complexity of Poor Children's Transitions

Data concerning household moves presented so far, daunting as they are, still fail to capture the full complexity of poor children's school transitions. To get closer to that reality, Figure 4.2 displays the mobility histories of the Beginning School Study youngsters in just one school where the schools' irregular grade structure (PK-3) required that students move to a companion school after third grade to complete elementary school. Of the 69 youngsters who started first grade in this school, where the meal subsidy rate was over 90%, less than one-fifth went through their elementary years in a completely orderly way. Without tracing out every path, the reader can see that over the

**Figure 4.2** Five Year School Mobility Patterns for the 69 BSS Youngsters Enrolled in One of the 20 Schools in the Original Beginning School Study Sample (1982)

TW=school transfer within year  TO=transfer out of the City system  TB= school transfer between years  S = remained in same school all year and into the fall of the following year. The bolded boxes and arrows indicate most stable mobility patterns. Shaded boxes indicate students who transferred out of the City system.
tracks within schools created by retention and Special Education assignments are made early in children's school careers, actually in the first two years, when their full significance may not be appreciated. By the end of second grade, for example, roughly one-quarter (27%) of Beginning School Study children had either been held back or placed in Special Education. The remainder of this section takes up these tracks within schools.

Ability Grouping

Ability grouping for reading is found in more than 90% of first grade classrooms nation-wide (McPartland et al. 1987) and perhaps for this reason it is the structural arrangement in the primary grades to which sociologists have paid the most heed (e.g., Haller and Davis 1980; Eder 1981; Barr and Dreeben 1983; Felmlee and Eder 1983; Rowan and Miracle 1983; Hallinan and Sorensen 1987). The consensus is that grouping children by ability confers no overall advantage compared to whole-class instruction because some students do better, while others do worse (see Haller and Davis 1980; Haller 1985; Hallinan and Sorensen 1983, Sorensen and Hallinan 1984 for citations). Evidence is mounting, however, that this picture is too simplistic.

For one thing, even when different groups of children use the same basal reader, those in low groups read word-by-word, with teachers providing isolated decoding clues, so these children have little chance to apply their knowledge of spoken language or of how the world works. Those in high groups, by contrast, are required to pay attention to clauses, expressive intonation, and the emotional states of the characters in the story (see Collins 1986; Alpert 1975; Dreeben and Barr 1988). Group level also affects how group members treat one another. Other things equal, students in low groups become more conformative at more than twice the rate of students in high groups, and the longer students stay in the same group, the stronger these forces become (Felmlee and Eder 1983). Reading group rank determines how teachers assign marks, and children who get higher marks learn more (all else equal). Either because of school policy or teachers’ personal convictions, often children in low groups are barred from getting A's no matter how hard they try. Also, the lower rated children in high reading groups often get lower marks than children of the same tested ability in low reading groups (Reuman 1989).

Less attention has been paid to the "institutional" effects of ability groups than to the dynamics of these groups, as summarized above. Still, educators and parents believe that grouping is a rational mechanism for sorting students, so children in high groups tend to be treated as if they were high performers regardless of their actual skills or competence. Evaluations of students’ skills can thus be a byproduct of the symbolic meaning of their ability group placement rather than of actual performance levels. For example, Beginning School Study teachers and parents perceived children in high-ranked reading groups in first grade as being more competent in the following year than did parents of similar children in low-ranked groups. Independent of students’ actual performance, and with other key variables controlled, these perceptions of greater competence led children to do better later on (Pallas et al. 1994). Such perceptions may even govern children's activities outside school, because 60% of Beginning School Study parents of children in high ability groups said that in the summer after first grade, their children went to the library compared to 49% of parents of children in low-ability groups.

Grouping by Other Characteristics. It is becoming apparent that criteria other than ability may be the de facto basis for "ability grouping." Kellam and his associates (1990; 1991; 1994) found that children in high-ability classrooms had low rates of aggression (5%) whereas children in low-ability
classrooms had high rates (60% or more). Grouping may thus depend in part on children's non-cognitive characteristics and "concentrate" aggressive behavior even if not exacerbating it. Along similar lines, within every Beginning School Study school, whether of high or low socioeconomic status, children's reading group assignments in first grade corresponded to how the teacher ranked children's interest/participation. Compared to children in low groups, teachers saw children in high groups as being much more interested in classroom activities and also rated them higher in attention span/restlessness. (Data not shown.) There also was "concentration" by children's temperament or classroom behavior: Beginning School Study children initially placed in a high ability group also were increasingly grouped with children who had good classroom adjustment. Not many Beginning School Study children shifted reading groups during the year, but those who were shifted to a lower group were rated lower on interest participation and on attention span-restlessness than children not shifted.

Thus, grouping practices early in school could well have a different basis and more wide-ranging consequences than previously thought. The long-term sequelae of problematic classroom behavior of first grade males include dropout, teenage delinquency and violence, as well as drug, alcohol, and cigarette use (see Kellam 1994), so grouping that intensifies these behaviors is a matter of some consequence.

Problems in Forming Groups. Despite the prevalence of ability groups, children's test scores in reading at the beginning of first grade may actually be so unreliable that it is impossible for teachers to rank students accurately. The standard error for the California Achievement Test in reading comprehension, for instance, is about 25 points at the beginning of first grade (California Achievement Test 1979), which implies that the 95% confidence band for any one child's test score is around 100 points. In addition, the lack of variation in students' socioeconomic standing and ethnicity within any one elementary school worsens the problem, because the range in scores is restricted. This being the case, the "ability" groups teachers form at the beginning of first grade contain students who are quite heterogeneous in ability. Research showing little or no effect of ability grouping may thus reflect a failure to group children accurately rather than a lack of grouping effects. In 6 of the 20 Study schools, students in the lowest group on average out-scored children in the middle group.

A further issue is that the "high ability" group in one school can be lower than the "low ability" group in another school. In the BSS, for example, children in the lowest reading group in one high socioeconomic status school had an average reading score of 302 at the beginning of first grade while children in the highest group in a low socioeconomic status school had an average score of 277.4 Given these complexities, the combined institutional and instructional effects of grouping are hard to predict.

Grade Retention

Only a rough estimate can be made of the number of children held back in school each year because there are no national data on grade retention. However, the number of children enrolled below the modal grade for their age shows how many are off-time (presumably "retained"), and the number of off-time students goes up as grade level goes up (U.S. Bureau of the Census 1992b). In 1993, by age 8 (grade 3), 24% of males and 21% of females were already below the modal grade for their age, and by age 11 (grade 6) 33% of boys and 24% of girls were below modal grade (Bruno and Adams 1994). Retention rates are generally highest in large urban areas. By the sixth year, 43% of all Beginning School Study youngsters (51% of the boys and 36% of the girls) were off-time by at least one year.

Not surprisingly, enrollments below modal grade escalate rapidly as risk factors cumulate. In poverty households where the head is a dropout, about 50% of the boys and 40% of the girls are over-age for their grade (Bianchi 1984). Likewise, among NELS-88 eighth graders, in the lowest socioeconomic status quartile over 31% were held back compared to about 8% of children in the highest quartile (National Center for Education Statistics 1990).

Retention rates vary inversely with age, being highest for first graders. For the 15 states for which data are available, first grade retention averages over 11%, and retentions are around 7% per year for grades two through six (Shepard and Smith 1989). Grade specific rates in the 7%-8% range for elementary children are consistent with cumulative retention rates on the order of 50% in many areas of the country. Beginning School Study data reflect the same patterns: over 17% of Beginning School Study first graders were held back, a rate more than twice that for any later year, and by year 8, almost half of the Beginning School Study students still in City schools were held back at least once (Alexander, Entwisle, and Dauber 1994; see also Fine 1991).

The causes and consequences of retention are not well understood, mainly because most research on retention ignores children's pre-retention status even though students who are retained have many problems before retention. About 84% of the Beginning School Study first graders who were retained were on meal subsidy, for instance (Table 4.7), compared to 53% of those who were not retained through grade 7. Compared to never-retained, average
Table 4.7  Characteristics of First-Grade Retainees, All Retainees, and Never-Retained Children at Time of School Entry

<table>
<thead>
<tr>
<th></th>
<th>Grade One Retained</th>
<th>Ever Retained in Any Grade</th>
<th>Not Retained (through 7th grade)</th>
<th>Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent male</td>
<td>0.57</td>
<td>0.57</td>
<td>0.43</td>
<td>0.49</td>
</tr>
<tr>
<td>Percent receiving meal subsidy</td>
<td>0.84</td>
<td>0.85</td>
<td>0.53</td>
<td>0.67</td>
</tr>
<tr>
<td>Average mothers' education; years</td>
<td>10.8</td>
<td>10.6</td>
<td>12.4</td>
<td>11.7</td>
</tr>
<tr>
<td>Percent in 2-parent family</td>
<td>0.37</td>
<td>0.42</td>
<td>0.61</td>
<td>0.53</td>
</tr>
<tr>
<td>Average reading mark, fall first year (1=unsatisfactory; 2=C)</td>
<td>1.10</td>
<td>1.45</td>
<td>2.17</td>
<td>1.88</td>
</tr>
<tr>
<td>Average math mark, fall first year</td>
<td>1.30</td>
<td>1.75</td>
<td>2.57</td>
<td>2.25</td>
</tr>
<tr>
<td>Average CAT score, reading comprehension, fall first year</td>
<td>257</td>
<td>267</td>
<td>291</td>
<td>281</td>
</tr>
<tr>
<td>Average CAT score, math concepts, fall first year</td>
<td>264</td>
<td>276</td>
<td>305</td>
<td>293</td>
</tr>
<tr>
<td>Average number of absences in first year</td>
<td>18.2</td>
<td>16.2</td>
<td>11.2</td>
<td>13.2</td>
</tr>
<tr>
<td>Average conduct mark (1=needs improvement; 2=satisfactory) fall, first year</td>
<td>1.61</td>
<td>1.66</td>
<td>1.81</td>
<td>1.75</td>
</tr>
<tr>
<td>Average peer popularity rated by teachers (1 to 5, with 5 high)</td>
<td>2.61</td>
<td>3.09</td>
<td>3.81</td>
<td>3.52</td>
</tr>
<tr>
<td>Average in-class interest/participation rated by teachers (5 items, each rated 1 to 6)</td>
<td>16.3</td>
<td>18.7</td>
<td>24.2</td>
<td>22.0</td>
</tr>
</tbody>
</table>

*All differences between ever retained (column 2) and never retained (column 3) groups significant at or beyond the .01 level.

reading comprehension scores of those who would be retained later that year were about one standard deviation lower when children began first grade as were scores in math concepts (Table 4.7). Compared to children never retained through grade 7, retainees were more likely to come from a one-parent than a two-parent home (58% versus 39%) and their mothers were more likely to be drop-outs rather than high school graduates (average of 10.6 years of school versus 12.4). Retainees were also absent about 50% more often, less popular with peers, less involved in classroom activity, and less well-behaved in class. The scheduling of Beginning School Study children's retentions matched the severity of their difficulties: those with the lowest California Achievement Test scores at the beginning of first grade were held back that year, those with the next lowest scores were held back in their second year, and so on (Alexander, Entwisle, and Dauber 1994; see also Shepard and Smith 1989; Reynolds 1992).

Retainees' low test scores, low marks, many absences, and disadvantaged home backgrounds all indicate that the decision to have children repeat first grade constitutes a public signal vouching for the severity of their problems. Critics sometimes assume that doing away with retention will solve children's problems, but they mistakenly ignore pre-existing conditions. The picture is very misleading because effects of retention overlap all the problems these children bring with them when they start school.

From the perspective of school organization, retention effectively creates a separate school track. (1) Retained children are separated from their age mates, moved away from their peer group. (2) Retained children are "off-time" in the rigidly age-graded system of the elementary school, usually permanently. (3) Compared to their classmates, repeaters are taller, heavier, and have fewer deciduous teeth. This size-status inconsistency is aggravated by the onset of puberty: the average Beginning School Study girl in 4th grade who was retained once, for example, was 7 lbs. heavier (about 10%) than her "on-time" classmates. (4) By taking the same grade twice retained children are exposed to a less advanced curriculum than their age-mates. Furthermore, since they are assigned to the low reading groups before being retained, they are doubly disadvantaged in reading (Alexander, Entwisle, and Legters 1995). (5) As noted earlier, retained children often have incomplete school records because they miss testing sessions and the like. Of four California Achievement Tests routinely involving Beginning School Study children in the first two years of school, 44% of retainees missed at least one compared to only 9% of the other children. Missing tests creates gaps in school records that put retained students at a further disadvantage. Gaps in themselves are a kind of "labeling."
It is worth noting that higher retention rates make schools look better because the least capable students (those who are retained) take easier tests. First grade repeaters who would take grade 2 level tests if they were on time, take grade 1 achievement tests if they have been retained, for instance. Schools also have a better looking profile on standardized tests when retained students miss tests or their tests are "lost," because then proportionately more low scores are left out of the school average.

To sum up: the largest percentage of children who will ever be retained are retained in their first and second years of school. With no national data on retention, neither the public nor policy analysts appreciate how prevalent early retention is or how misleading evaluations of its effects are.

Special Education

Special Education placement is less common than retention but still far from rare (Heller 1982; Leinhardt and Pallay 1982; Madden and Slavin 1983; on retention see Jackson 1975; Holmes 1989, Harvard Education Letter 1991; Karweit 1992). Following the passage of Public Law 94-142 in 1975, the number of children in federally funded Special Education programs jumped from about 8% of public school students to just under 12% by 1992-93 (U.S. Department of Education 1995 p.346). Children with mild learning handicaps showed the biggest jump: between 1976-77 and 1992-93 the proportion of Learning Disabled rose from 1.8% to 5.5% of the total enrollment in public schools.

Special Education children can be placed in separate classes, but the majority are mainstreamed for all but one or two hours a day. Even so, Special Education is a "track" that is obvious to students and to teachers, and the consequences of being placed in Special Education are almost as serious as the consequences of retention when it comes to middle school course-taking (see Table 4.5). Also, most children placed in Special Education tend to remain there (Walker et al. 1988; Edgar et al. 1988).

It seems that if retention was not effective in getting Beginning School Study children up to satisfactory performance levels, Special Education was often the next step taken. Of the 42 Beginning School Study first-grade retainees who remained in Baltimore schools for at least 8 years, 38 were also in Special Education for that entire period (Alexander, Entwisle, and Dauber 1994). Figure 4.3 records retention and Special Education placement for Beginning School Study children over their first 6 years of school. Again the details of the figure are presented more to convey how complex children's trajectories are rather than to convey the specifics. The bolded boxes and lines on the diagonal represent students who remained on-time throughout. Students above the diagonal were retained at least once during their first 6 years of school. Children who received only Special Education "pullout" instruction in reading and math are included in the tally for their grade level. A horizontal line between boxes across two years indicates that children were retained in that year. Thus, 126 students were retained in the first year, 61 in second grade, 45 in third grade and so on.

The complexity of elementary school track assignments suggests why most studies probably underestimate or misinterpret the effects of retention and Special Education. Beginning School Study children still in City schools after 5 years were spread across four grades (see column 5 under "years"), with 8% (52) in separate Special Education classes. Of the 614 youngsters still enrolled, only 365 (59%) were in fifth grade, 171 (28%) were in fourth grade, and 22 (4% of the original cohort) were in third grade (two years off-time). The four students who had earlier skipped a grade were in 6th grade.

Multiple Placements

Researchers generally treat retention, Special Education, and ability grouping as three isolated events but ignoring children's placement in multiple tracks could easily disguise or misrepresent the effects of any one placement. For a child to be in a low reading group and then retained is a different experience from being placed only in a low reading group, for example.

The large majority of Beginning School Study children (69%) had no low placements in first grade (Entwisle and Alexander 1993; Alexander and Entwisle 1996b). Of the others, 22% were in the lowest reading group; 16% were held back at year's end, and 13% were in Special Education. Of youngsters who experienced any of these placements, more than half (55%) had only one low placement, but the rest (45%) had multiple low placements in all possible combinations. For example, almost three-fourths of children in low first grade reading groups were held back, half of them in first grade. By the end of the sixth grade, 35% of those who had been in low first grade reading groups were retained a second time. In comparison, none of the high reading group youngsters repeated first grade and 88% did not repeat any grade. Children in low groups in first grade were also more likely than other children to be in Special Education later on: more than half the children in low reading groups in first grade were receiving Special Education services in sixth grade, compared to only 6% of children in the high group in first grade (Alexander and Entwisle 1996b).
Retention and Special Education often occurred together. Three quarters of all Special Education students were first retained. Half of the first or second grade Special Education children who were not held back in first grade were held back later, compared to 23% of those not in Special Education. They also were much more likely to be held back a second time (32% vs. 10%) than children not in Special Education. First grade repeaters were also at higher risk for a second retention: 44.5% were held back a second time compared to just 6.5% of the children promoted at the end of first grade.

Some researchers emphasize the lack of mobility in reading group level from one grade to the next (see Rist 1970), but Beginning School Study children in both the lowest and highest first grade reading groups were found at all second grade reading levels. Just 45% of children remained in the same level of reading group in first and second grade with 34% predicted to stay in the same group by chance alone. Movement between years is generally downward, because 87% of first graders were in high or middle groups compared to only 69% of second graders. The lowest group enlarged the most - from 13% to 31%. The downward trend in group placement between years is partly a consequence of the high rate of retention in first grade. That is, when the least successful students are retained, the "low" group in second grade must be filled from the ranks of the children left to choose from. In this way, a high retention rate has effects on children not retained by consigning more of them to lower reading groups in the following years. Altogether, 37% of Beginning School Study children were in a low reading group in year one or year two, or both.

Retention and reading group level both affected Beginning School Study children's learning, but in opposite ways (Alexander, Entwisle, and Dauber 1994). Retention helped children do better, at least temporarily, while being in a low reading group hindered children. We think retention helped partly because in their initial first grade year, the future repeaters got very low marks, and at that time their academic self-images were lower than those of their classmates (who got higher marks). In their second year, however, when the repeaters took the same curriculum again, their marks were considerably higher (Alexander, Entwisle, and Dauber 1994), and their academic self-images improved. A rising self-image linked to higher marks is found fairly consistently (see Finlayson 1977; Reynolds 1992).

Only a few studies other than the Beginning School Study follow a single cohort of children from first grade up through the later grades (e.g. Pedersen et al. 1978; Ensminger and Slusarcick 1992; Stroup and Robins 1972), but all find evidence of long-term consequences of early tracking. Other things equal, Beginning School Study children's first grade reading group rank
affected their standardized achievement scores in reading and math as well as their parents' expectations up through at least the fourth grade (see Pallas et al. 1994). Children's reading group rank had larger effects on their test scores than their reading marks did. Since teachers determined both marks and reading groups, if reading group assignment predicted only marks and not test scores we could conclude very little. Since reading group rank had some direct effects independent of marks, however, either grouping helped Beginning School Study children to learn more or there were institutional effects of reading groups (children labeled as "high" were treated as such and so learned more) or most likely both.

Beginning School Study students in high-ability reading groups also learned more mathematics than children in low groups. Possibly children "learn to learn" in high-ability groups, or perhaps placement in a high-ability reading group increased students' motivation and this carried over into other subject domains. We suspect institutional effects, however. The higher group students were probably treated as though they had more ability in math as well as in reading. Beginning School Study parents held very similar expectations for their children's performance in the two subjects: correlations between parents' expectations for their children's marks in reading and math were .62 at the beginning of the first year and .65 at the beginning of the second year. (See also Entwisle and Hayduk 1978; 1982.) The generalization of reading group effects to a completely different academic area like math lends strong support to an institutional theory of ability group effects, especially because at this age children's own expectations have negligible effects on their performance (see Table A8 in Alexander and Entwisle 1988).

**Elementary School Organization Reconsidered**

**Age-Grading**

This chapter began by pointing out that children's age is the prepotent determinant of elementary school organization in the U.S. Typically all children born within a designated 12-month period are placed in one grade-school cohort. In Baltimore, those born during 1976, like the Beginning School Study children, began first grade in September of the sixth year following their birth. Children who would turn 6 by December 31, 1982, were enrolled in September, 1982, but those born January 1, 1977 or later had to wait to enroll until September, 1983. This age rule determined that Baltimore children up to 6 years and 8 months of age began first grade with others as young as 5 years and 8 months. Later, a few children (less than 1%) were moved ahead because of superior performance, but many more, eventually 43% were "moved behind," i.e., retained over the first few years of school.

The rigid age grading of students in elementary schools goes against scientific information about how children's chronological age affects their schooling. In fact, entrance age does not predict children's cognitive growth in first grade (Alexander and Entwisle 1988; Jones and Mandeville 1990; Shepard and Smith 1986). Or, put another way, children's rates of learning in middle childhood are independent of their age over relatively long (1-year) time spans. If "young" Beginning School Study first-graders (those with birth dates in November-December, just before the cut-off) are compared with "old" first graders (those with birth dates in January-February, 11 or 12 months before the cut-off), the older children, on average, have higher test scores when they begin first grade than the younger ones do (Table 4.8). However, the gains over first grade by the "older" and "younger" Beginning School Study students are almost equivalent. It follows then that the test scores of "young" Beginning School Study first graders at the end of the school year were lower than test-scores of the "old" first-graders, but children in both age groups had gained the same number of points on standardized tests of achievement in reading and math over first grade.

Further evidence on the lack of a relationship between age and children's progress in school comes from an Israeli study of 4th, 5th, and 6th grade students in Jerusalem's state-controlled elementary schools. Cahan and Cohen (1989) compared the mean scores predicted for the youngest children in one grade with scores for the oldest children in the next lower grade. If age mattered, then the oldest child in grade 3, say, should have the same score as the youngest child in grade 4 because their ages are very close. Yet this kind of comparison showed a jump in scores between the equally old grade 3 and grade 4 Jerusalem children that unambiguously points to the amount of children's schooling rather than their age as the key factor explaining growth.

Evidence from natural experiments also suggests that time spent in school rather than age explains how much children know. Ceci (1991) estimates that children's IQ scores drop between 0.25 and 6 points per year when schools are shut down. He notes that when the public schools in Prince Edward County, Virginia were closed between 1959 and 1964 to avoid integration, most African American children received no formal education. On average, their IQ's dropped by about 6 points per year for every year they missed school, with children of all ages affected (Green et al. 1964). For another example, when World War II forced Holland's schools to close, the IQ scores of children whose schooling was delayed dropped by about 7 points (DeGroot 1951).
Table 4.8  Beginning California Achievement Test (CAT) Scores and First Year Test Score Gains For "Young" and "Old" Beginning School Study (BSS) First Graders

<table>
<thead>
<tr>
<th></th>
<th>&quot;Young&quot;</th>
<th>t-tests</th>
<th>&quot;Old&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Year 1 CAT Score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>270</td>
<td>*</td>
<td>282</td>
</tr>
<tr>
<td>Math</td>
<td>278</td>
<td>*</td>
<td>301</td>
</tr>
<tr>
<td>Year 1 Test Score Gains</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>64.7</td>
<td>68.7</td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td>54.0</td>
<td>49.4</td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .05

"Young" BSS first graders are defined as those whose birthdays fall in November or December, just before the cut-off date for entering first graders. "Old" is defined as those with birthdays in January or February, 11 or 12 months before the cut-off date.

t-tests compare means of "young" and "old" BSS students.

Other facts are consistent with the importance of school attendance rather than age for young children's cognitive growth. The number of hours of schooling children receive correlates with their scores on verbal and math aptitude tests (Wiley and Harnischfeger 1974), and the number of children's absences is inversely related to their test score gains (Heyns 1978; Karweit 1973; Bond and Dykstra 1967; Alexander and Entwisle 1988). Most persuasively, as noted earlier, all children's achievement scores in the spring exceed their scores in the preceding fall, but some children's growth slows down or stops when school is closed for the summer. All children get 3 months older in summer but only those whose families are well enough off to provide sufficient resources can continue to make achievement test gains over the summer (see Ceci 1991; Heyns 1978; Entwisle and Alexander 1992; 1994).10

The intent here is not to assemble exhaustive evidence about chronological age in relation to cognitive growth, but rather to make clear that children's chronological age may not be the best or only criterion to use in organizing elementary schools. For children who come from low socioeconomic status homes, it may be highly profitable to start school as early as possible.

Age and the Schooling Process

A serious question but one rarely considered is whether the process of schooling is the same at every age. Do the same structural models portray the schooling process at ages 6, 7, 8? That is, do the same variables affect schooling in the same way for children of different ages? If different variables explain children's achievement at different ages, school programs should be fashioned accordingly. First grade seems to be the time when students' non-cognitive characteristics have their greatest effects,11 for example, so special attention should be paid to the "fit" of the student in the first grade classroom. Physical arrangements of classrooms could matter most in first grade and need to be different from those in later grades. Changes in how classrooms are laid out or changes in scheduling might make it easier for some first graders to pay attention or to participate in class. Also various versions of the first grade curriculum may be required to stimulate different children's interest and participation. If some kinds of development occur at a rapid pace early in children's school careers and then slow down, the resources to support that development should be allocated early so as to exert the greatest effect. An analysis of the learning process could suggest logical ways to re-shape elementary school organization so as to enhance children's achievement.

Although research with secondary school students (8th grade and up) assumes that the resources related to school achievement (family background, student ability, teacher expectations and so on) are the same in the eighth grade as in the twelfth, this assumption has yet to be seriously tested. For Beginning School Study children, some variables affected cognitive growth differently from one year to the next. For instance, variables related to temperament and personality directly affected schooling early—in first grade—and had only negligible direct effects in later grades. Also, even by the second year of school, boys' reading marks had slipped compared to girls' (Alexander and Entwisle 1988).

Some effects of schools also carry over from one elementary year to the next (Alexander and Entwisle 1988), while others do not. Parents' expectations for children's performance at the beginning of grade one, for example, directly affected performance in that first year, and their children's performance in grade one affected performance in grade two. The indirect effects of grade one parents' expectations added on to the direct effects of parents' expectations in grade two (Alexander and Entwisle 1988; Pallas et al. 1994). Changing parents' grade one expectation could, therefore, affect performance indirectly for several years after first grade.

As shown earlier, children's growth rates also vary throughout the year (see
Heyns 1978; also Entwisle and Alexander 1992; 1994). In winter, when all children grow at much the same pace, family background and neighborhood quality have very small effects. In summer when school is closed, however, rates of learning vary markedly according to the socioeconomic status of family and neighborhood. How could resources be marshaled to support children's cognitive growth when school is closed? The calendar now in place, with schools shut down for the summer, exacts a heavier penalty on poor than on better-off children.

Changes in school practices within the school year are not likely to close the gap in achievement between poor and well-off children because poor children are already gaining at the same rate as better-off children when school is open. Rather, resources must be supplied in summer to supplant those that the school supplies in winter. This order is not easy to fill because traditional "summer schools" so far have not done the job. (See Chapter 3; also Heyns 1987; Entwisle and Alexander 1992; Entwisle and Alexander 1997.) The topic of summer school is beyond the scope of this chapter but fruitful ways for children to use their time over the summer months are badly needed.

Implications

Socioeconomic Tracking

The major thesis of this chapter is that children in U.S. elementary schools are rigidly tracked by socioeconomic status, and this tracking produces school contexts that foster inequality. When they are open, schools are nevertheless very effective in making up for shortfalls of resources in poor youngsters' homes (Chapter 3). Children who are not so well-off actually learn as much or more than their better-off classmates do when school is open, but they are not treated that way. Children in one elementary school are treated as "high ability" (because on average they have "high" test scores when they start first grade) and children in another elementary school are treated as "low ability" (because on average they have "low" test scores when they start first grade). These disparities in treatment can be seen as soon as children begin school or even before, even though all children make equal progress once they start first grade. Over first grade, children in the top ten Beginning School Study schools gained 62 points on California Achievement Test tests in reading, almost exactly the same as the average number of points children in the lowest ten Beginning School Study schools gained—60 points. Even so, the first-grade reading instructional level for children in the Beginning School Study school located in the most advantaged neighborhood was halfway between average (pre-primer which is considered at grade level) and above average (primer), while the reading instructional level of children in the school located in the poorest neighborhood was below the pre-primer level. The myth that elementary schools share the same curriculum is thus false because the type of instruction provided for students varies by socioeconomic status of the school. Furthermore, when schools are closed students in more prosperous neighborhoods have the resources to learn even more. The "neighborhood school" has a friendly ring to it, and of course 6-year-olds are more comfortable going to school close to home with other children they know than traveling to some other neighborhood, but the long-term costs of neighborhood schools are high.

The lack of good preschools for 3 and 4-year-olds is an important issue related to tracking that is beyond the scope of this chapter. Still, it must contribute to the differences between better-off and poor children's achievement levels when they start school. Headstart reaches about 40% of eligible 4-year-olds and under 20% of eligible 3-year-olds (Stewart 1993). Even with nursery school, Headstart, and all other center-based programs combined, however, only about 60% of 4-year-olds with family incomes under $15,000 were enrolled in center-based programs in 1991, with high school drop-outs and/or teenage parents the least likely to enroll their children (U.S. Department of Education 1994b). The lack of preschool facilities for disadvantaged youngsters prior to kindergarten is a major way that differential tracking by family income takes an early hold upon children from disadvantaged backgrounds. A few extra test points conferred by attending a good preschool could be enough to protect economically disadvantaged youngsters against low placements or retention in the first couple of grades. (See Entwisle 1995.)

Presently socioeconomic status patterns across elementary schools are virtually ignored, yet this kind of tracking probably explains all or most curricular tracking in high school. Fifth year test scores effectively determine course-taking patterns in middle school, and the middle school patterns in turn determine high school placements (Dauber, Alexander and Entwisle 1996). Early tracking must also have serious and long-lasting consequences for children's socioemotional development, but so far these have been barely hinted at.

Transitions

The matter of student age when children begin school demands review. Almost everywhere in the U.S., chronological age alone dictates when children begin first grade. If all goes well, children march in lockstep with their age
mates up the grade ladder. If all does not go well, however, children end up "off-time," which in and of itself can have deleterious effects. The rigid structure of American elementary schools in terms of children's age is not warranted by the facts about children's school learning because within a rather wide age range children learn at about the same rate. Grouping children by wider age bands should be considered because (1) it would help reduce the number of off-time students and (2) it would also reduce the number of between-grade transitions young children have to make. Much more research is needed, but multigrade classes appear to be as effective as single grade classes in terms of both cognitive and non-cognitive outcomes (Veenman 1995).

Children's level of development when they move into first grade is a key issue for elementary school organization. Only a few studies besides the BSS, however, address the "settling in" and "transition" issues that face children starting school (Entwisle and Hayduk 1978; 1982; Reynolds 1989; 1991; 1992; Barr and Dreeben 1983). The fact that children's test scores vary by socioeconomic status when they start school is widely accepted, but that variation could be considerably reduced by Headstart (Consortium 1983), or by full-day kindergarten attendance (Entwisle et al. 1987) and no doubt by other means as well. The beginning school transition is probably the most important school transition because it sets the stage for all that follows.

One way to ease the first grade transition is for children to attend full-time kindergarten. Because kindergarten is not compulsory, a surprisingly large number of children do not attend or do not attend full-time. About 8% of 5-year-old children nationally are not in school (U.S. Department of Education 1995) and in Maryland in 1994, 3.3% of first graders had not previously attended kindergarten. In Baltimore City, however, which is one of the poorest districts in Maryland, 10% of the children did not attend kindergarten. Also time spent in kindergarten varies widely even within the same district. The large majority of Beginning School Study children in Baltimore attended half-day programs. Not surprisingly, Beginning School Study children from the least advantaged home backgrounds more often were enrolled in the half-day than the full-day programs: of Beginning School Study children who attended half-day kindergarten, 77% were on meal subsidy compared to 32% of those who attended full days. The benefits of full day as compared to half-day kindergartens were striking. With family background and many other variables controlled, first grade children who had attended full day kindergarten were absent less, were less often retained, and got higher academic marks and test scores than those who attended half days (Entwisle et al. 1987). Kindergartens are now almost universally available in the U.S.

but they are underutilized. Half-day programs should be replaced by full-day programs, especially in poorer areas.

Disorderly transitions between grades are a separate issue, and we suspect that in many large school systems besides Baltimore, the irregular grade structures that force children to make extra transitions are found mostly in the poorer neighborhoods. These transitions reduce children's school success and quality of life. If unusual patterns of grade structure are indeed required, these should not be imposed mainly upon students who are already at a disadvantage. The negative consequences of extra transitions could probably be reduced if parents and schools were made aware of how seriously they affect young children's schooling, however.

Notes
1. In 1990-91 mean enrollment in Baltimore City public elementary schools was 529, in middle schools 888, and in high schools 1078.

2. The examples here of the variation between schools in Baltimore City is a "minimal" picture because all these schools are in one of the poorest school districts in Maryland. If schools were contrasted between districts as well, the variation across elementary schools would be much greater. In 1991-92, the average expenditure per pupil in Baltimore was $4,947, which was about 85% of the state average ($5,815) at the time, but only 65% of the average ($7,591) for Montgomery County, the wealthiest district. Furthermore, in Baltimore 67% of children were on meal subsidy compared to 17% in Montgomery County (Maryland State Department of Education 1992). Baltimore City children were thus allotted only two-thirds as much money for education as were children in a nearby school district where families were much better off.


4. Low reliability of tests is less of a problem for group averages than for individual students because the variance of the mean scores decreases as a function of the number in the group. For example, the variance in the means of groups of 10 students is only one-tenth of the variance in individual scores.

5. An 8-year-old who is in third grade is "in modal grade for age" while a 9-year-old in third grade is "below modal grade for age." Those above the modal age could have been held back, or could be behind for many other reasons, including starting first grade at a later age. For this reason, modal age data are less than ideal for estimating trends in grade retention.

6. The total number of retainees in these years is slightly higher because students assigned to Special Education in the spring of the year, before being retained, are added to the Special Education category at the bottom of the chart. Their grade placement following that assignment is not displayed in the Chart, so figures in the upper section of the Chart slightly undercount retainments. The complete tally of
retainees is as follows: 1st grade - 127, 2nd grade - 68, 3rd grade - 47, 4th grade - 21, 5th grade - 10.

7. A maximum of about half the cohort could have placed low in one of the three areas (16% retained + 13% in Special Education + 22% in low reading groups = 51%). The actual figure is 24% (or 31% looking at just those with data in all three measures.)

8. Controls include race, socioeconomic status, sex, family type, parent expectation level, marks and test scores when children started first grade.


10. The evidence as to how various kinds of cognitive growth depend on formal schooling is burgeoning, but patterns at present are not altogether clear. Over kindergarten or first grade, schooling affects language, spatial perceptions, a combined test of language and spatial concepts, but not associative memory (Huttenlocher et al. 1997). From the beginning of kindergarten to the end of first grade (two years), Morrison, Griffith, and Williamson (1993) found differences in growth in mathematics and cultural knowledge between children enrolled in school and those not enrolled, but not differences in their reading or receptive vocabulary, probably because children practice reading and vocabulary skills outside of school, while math and cultural knowledge are topics less widely available. In other studies, grade-one schooling enhanced short-term memory and mental arithmetic with no evidence that age played a role, but phonological segmentation depended on both age and schooling (Morrison, Smith, and Dow-Ehrensberger 1995). By contrast, conservation of number depended only on age (Bisanz, Morrison, and Dunn 1995) and instruction does not seem to help children acquire general principles of conservation.

11. See Alexander and Entwisle 1988. Such effects are not found for high school youngsters, or if found, are extremely small (e.g., Bechman, O'Malley, and Johnston 1978; Gottfredson 1982; Mueser 1979; Olneck and Bills 1980).

5

Family Configuration

Children growing up in the United States today have different family experiences from those of their parents. Between 1970 and 1993, for example, the proportion of children maintained by their mothers jumped from 11% to 23% (U.S. Bureau of the Census 1994), so that by 1993 more than 19 million children lived in families that did not contain two parents. Single parenting is the mode for African Americans; in 1993 only a minority (36%) resided in homes with two parents (U.S. Bureau of the Census 1994). Also, over the past two decades an increasing number of "single parents" are fathers: the number of families in which children lived with never-married fathers increased 15-fold (from 22,000 to 345,000) between 1970 and 1990 (U.S. Bureau of the Census 1990a). By 1990 about 14% of single-parent families were "father-only."

Family configuration overlaps economic disadvantage. Children in husband-wife families fare best. In 1992 their average income was about two and one-half times as great as that in mother-only homes (about $47,000 compared to $18,000) (U.S. Bureau of the Census 1992a), while their poverty rate (10%) was only one-fifth the rate for children in female-headed households (53%) (U.S. Bureau of the Census 1992a). One reason the number of mother-only families has swelled is because of the upswing in non-marital births. In 1970 less than 6% of white births were non-marital, but by 1991 this figure had more than tripled (22%). Parallel figures for African Americans are over three times those for whites (U.S. Bureau of the Census 1992b): about 38% in 1970 and 68% in 1991. Children of these never-married mothers are the worst off. Their poverty rate exceeded 66% in 1992 (U.S. Bureau of the Census 1992a), in part because only 27% of their mothers had child support awards (U.S. Bureau of the Census 1995).

It is becoming increasingly clear that children growing up in single-parent families do not do as well in school as their counterparts in two-parent
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