On the Merits of Multiage Classrooms

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This paper brings together evidence from a variety of fields which throws light on the practice of age segregation in schools. Strict age segregation is essentially a phenomenon of the last century. Research studies show no consistent benefits to age segregation, and some affective and social advantages from multiage grouping. It is concluded that multiage and multigrade classrooms are socially and psychologically healthy environments.

A PERENNIAL DEBATE

Reflection on the quality of learning environments is a hallmark of the educational professional. Those professionals who work in small schools often wonder about the costs and benefits of the multiage and multigrade classrooms with which they are more familiar than their colleagues in larger schools. This interest is currently shared by the increasing number of teachers in medium-sized schools who find themselves teaching split grades. Proposals to close small schools often act as a catalyst for debate on this issue, with the intuition of parents and teachers frequently pitted against the efficiency rationale of district administrators. Such debates usually end with the execution or reprieve of the school in question, but with the educational issue unresolved.

In this paper, I shall attempt to summarize evidence that bears on the question of the merits of multiage classrooms. This includes not only the findings of experimental research, but also relevant evidence from ethology, anthropology, and history. The weight of this evidence strongly suggests that multiage classrooms have many benefits to children which cannot be as fully realized in age-segregated classrooms.

THE HISTORICAL CONTEXT OF AGE SEGREGATION

Most of us grew up in an age-segregated school system. So did our parents and grandparents, and this makes it easy to assume that such a school structure is both natural and universal. In fact, it is universal neither geographically nor historically. A quarter of Scotland's primary schools have fewer than fifty students; 80% of Portuguese children go to schools with no more than two classrooms; and there are 11,000 one-teacher rural schools in France [34]. Age segregation, as practised in most large schools, is a relatively recent phenomenon, and one which runs counter to the pattern of upbringing of the young which previously existed for millions of years.

Studies of primates show that almost all of the 193 living species of monkeys and apes grow up in societies characterized by diversity of age. According to Jolly [26],

"the striking characteristic of young, socially living primates is their social play" (p. 261). The context in which the young primate moves from dependence on the mother to adulthood is the mixed-age play group, whose members range from infancy to adolescence. In the play group, the young primate learns social and gender roles, control of aggression, and survival and nurturing skills. In general, the higher the primate is on the evolutionary scale, the more heterogeneous is the age composition of the play group.

A very similar pattern is found in anthropological studies of the approximately 180 hunting/gathering societies which survived into the present century, such as the Inuit, the Australian aborigines, and the !Kung San people of the Kalahari desert. Such societies typically live in groups of 30 to 40. Births are spaced a minimum of three years apart, so that the mother never has more than one infant to care for. The infant joins the play group after about the age of 18 months, imitating and relying on older children, who take responsibility for younger ones. Draper [13] records that "a typical gang of children joined temporarily in some play in the village might include a 5-year-old boy, an 11-year-old girl, a 14-year-old boy, and a 2-year-old toddler hanging on the fringe of the action" (p. 202). Cross-cultural studies show that in simpler societies, children spend more time caretaking infants, and are more nurturant than in more complex cultures. In all societies, aggression is more frequent among age-mates than in mixed-age groups [50]. Konner [27] draws the following conclusions from the ethological and anthropological evidence:

Infants are inept in relating to one another for the simple reason that they were never called on to do so during millions of years of evolution; consequently they could not have been selected for an ability to do this. They were selected instead for an ability to become integrated into a multiage group . . . The apes and protohominids went to considerable trouble to evolve for us a successful childhood in nonpeer play groups. Perhaps we should be a bit more cautious before we abandon the nonpeer pattern. (pp. 122-123)

The age-stratified culture in which we live is largely a product of the last two hundred years. In medieval Europe and in colonial America, children grew up surrounded by other children and adults of all different ages.

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Families were larger, and infant mortality and a high fertility rate resulted in a wide variance in sibling age. Schools and classrooms contained considerable age diversity. In the dedicated one-room school building that emerged in the eighteenth century, a full-time teacher would use individual and tutorial methods to instruct a group of 10 to 30 pupils ranging in age from 6 to 14 years [10].

The death-knell of the one-room school was sounded when Horace Mann [33], Secretary of the Massachusetts Board of Education, visited schools in Prussia in 1843 and reported that

> the first element of superiority in a Prussian school . . . consists in the proper classification of the scholars. In all places where the numbers are sufficiently large to allow it, the children are divided according to ages and attainments, and a single teacher has the charge only of a single class . . . There is a no obstacle whatever . . . to the introduction at once of this mode of dividing and classifying scholars in all our large towns. (p. 84)

Within a decade, Mann's ideas were being widely accepted by administrators who saw in them a parallel with successful manufacturing practice [32]:

> The principle of the division of labor holds good in schools, as in mechanical industry. One might as justly demand that all operations of carding, spinning and weaving be carried out in the same room, and by the same hands, as insist that children of different ages and attainments should go to the same school and be instructed by the same teacher.

Legislation followed standardizing age of entry and establishing sequential grade levels and curricula. Population concentration and improved transportation facilitated the development of large schools. The death of the one-room school in the United States and Canada was delayed by the Depression, the world wars, and the long struggle of rural communities to preserve it against the will of urban educational bureaucracies [8]. But by the 1950s, the standard environment of youth was the suburb, consisting largely of middle-aged parents and school-age children. By then, the "generation gap" was accepted as a fact of life, and the over-60s, perceived as socially and economically marginal, were segregated in high-rise apartments, retirement villages, and homes for the elderly.

By the mid-twentieth century, classrooms were more narrowly segregated by age than ever before. In 1918 the standard deviation of age in American Grade 9 classrooms was 14.1 months; in 1952 it was 8.6 months [29]. Ability grouping, which became popular after about 1920, further reduced the variety present in classrooms. It was not until 1959 that the first major challenge to age segregation in schools appeared, in the form of *The Nongraded School* by Goodlad and Anderson. In the 1963 edition [19], the authors documented the variability in the intellectual, emotional, and physical growth of children and adolescents:

> Grouping children "homogeneously" on the basis of a single criterion does not produce a group that is homogeneous to the same degree judged by other criteria . . . Teachers who proceed as though their class of gifted or retarded pupils were homogeneous are fooling themselves and cheating their pupils. (p. 17)

The influence of the book was rapid. Within a few years, thousands of school districts were claiming that at least some of their schools were nongraded. But the movement turned out to be an archetypal case of fashionable rhetoric concealing educational inertia. The research on nongrading, which includes at least 50 doctoral theses, shows that although formal grade distinctions were often removed, the narrow age structure of classrooms usually remained intact. Goodlad [18] expressed his own disillusion in 1968:

> My own view . . . is that there are, indeed, precious few nongraded schools . . . The concepts guiding nongrading are becoming part of the rambling rhetoric, the cant of current educational orthodoxy. (p. 4)

The nongraded school movement was not powerful enough to overcome organizational structures which were politically safe and administratively convenient. But one thing it did was to stimulate a great deal of empirical research into the effects of multiage and multigrade grouping. The body of this research points to some significant benefits to pupils who are placed in multiage settings.

CHILDREN'S FRIENDSHIPS

Children's friendships, both in classrooms and in naturalistic settings, have been one theme of the multiage research. The general picture that emerges from these studies is one of increased competition and aggression within same-age groups and increased harmony and nurturance within multiage groups [24; 48]. When children and adolescents find themselves in a mixed-age context, they associate and make friends across a relatively wide age range [43]. Rhoades [42] found that children in a nongraded elementary school chose friends from two years older to two years younger than themselves. In a study of adolescents outside school in Salt Lake City [15; 37], it was found that 31% of companions were other adolescents more than two years older or younger. Adolescent boys tended to associate with girls about 1½ years younger. While the average age difference among friendship groups in school was only 6 months, outside of school it was 14 months.

In the increasing number of high schools which are enrolling adults in regular classes, such friendships can cross generations. A student in one such class commented, "I would love to participate in a mixed-age class again. It is great the way the different age groups can work with each other." [46, p. 7]. In a classroom containing adolescents and senior citizens, a senior says, "I get along beautifully with the young students. I'm enjoying it all, even the homework" [4]; while a 17-year-old states, "I'm learning a great deal about life and living from them . . . I've learned that old age can be a wonderful thing." [5] The majority of older adults surveyed by Daum and Getzel [11] and by Spouse [45] expressed a preference for programs that allowed interactions with people of all ages.

It is a characteristic of young people that they imitate

and (both literally and figuratively) look up to children or adolescents who are older [3; 30] or whom they believe to be older [40]. One of the effects of this is that children receive maximum verbal stimulation and develop new vocabulary most rapidly when grouped with children slightly older than themselves [12; 20; 31; 49]. Studies of tutoring support these conclusions. Tutoring has a greater effect on the achievement of both tutor and tutee when the tutor is older than when both tutor and tutee are the same age [9]. This is consistent with Piagetian research which indicates that interaction between individuals at different levels of maturity will stimulate disequilibrium, equilibration, and cognitive growth in the less mature partner [6; 41]. For these reasons, multiage grouping appears particularly beneficial to the younger members of the group [23]. In conventional classrooms, younger members suffer a disproportionate incidence of failure and, even more alarmingly, of suicide [47]. In contrast to this, Milburn [35] noted that the youngest students in the multiage classrooms he studied consistently outperformed their peers in age-segregated classrooms.

Experimental studies in preschool settings confirm the positive effects of multiage grouping on social and emotional development. Hammack [21] found that three-, four-, and five-year-old children made more progress in self-concept in multiage than in single-age groups. Goldman [17] found three- and four-year-olds in mixed-age classes were more sociable than those in single-age classes. And in Israel, Bizman et al. [2] found that children in age-heterogeneous kindergartens were significantly more altruistic than children in age-homogeneous kindergartens.

It seems that, while age is a determinant of friendship, children and adolescents choose friends who are at an equivalent level in terms of development rather than chronological age [22]. In a multiage situation, children will more readily find friends at their own level. This is supported by evidence that fewer isolates are found in multiage than in age-segregated classrooms [1; 51]. Younger children are particularly helpful in reducing the isolation of socially withdrawn older children when assigned to them as playmates [16]. As childhood isolation is a significant predictor of later psychiatric disorder [14; 38], this must be counted a significant benefit of the multiage classroom.

EXPERIMENTAL STUDIES OF MULTIAGE CLASSROOMS

A major purpose of this review was to survey the results of the available experimental research in multiage grouping in classrooms. A total of thirty experimental studies were located, conducted between 1948 and 1983 in the United States and Canada. All examined the results of multiage grouping in elementary schools. All "multiage" classes contained a range of two or three years. Achievement variables were usually reading and mathematics scores on standardized tests. Social/emotional variables were commonly self-concept and attitude toward school. Many of the studies suffer from imperfect control of dif-

TABLE 1

Empirical Studies in Multiage Grouping
(30 Studies)

	Academic Achievement	Social/Emotional Development
Studies favoring conventional grouping	5	0
Inconclusive studies	13	6
Studies favoring multiage grouping	10	9

ferences between teachers and schools which elected or rejected multiage grouping. Too few of the studies reported sufficiently complete statistical data to allow more than a counting procedure for summation of the results.

Studies were classified as "favoring conventional grouping," "inconclusive," or "favoring multiage grouping," on the basis of the expressed judgment of their authors, which in all cases appeared to be justified by their findings. Table 1 shows the results for all 30 studies. Table 2 shows the results from those studies which were conducted as doctoral theses. Doctoral theses are in general likely to be relatively rigorous in their design, and meta-analyses have found theses more likely to report inconclusive results [44].

The findings summarized in Tables 1 and 2 suggest that multiage grouping has no consistent effect on academic achievement. Multiage grouping does, however, tend to be associated with better self-concept and attitude toward school. None of the 30 studies found a consistent negative relationship in this area. Similarly, in the one study located of a nongraded secondary school, academic achievement was unaffected, but the drop-out rate was significantly lower in the non-graded school [7]. Teacher attitudes appear to be determined by experience: teachers were generally found to approve of the structure with which they had become familiar [36].

Collectively, the empirical studies indicate that multiage grouping has no consistent effect on academic achievement, but has a generally benign effect on social and emotional development.

DIVERSITY AND UNIFORMITY

District administrators often use two arguments to support the closing of small schools. One is that such schools

TABLE 2

Empirical Studies in Multiage Grouping
(10 Doctoral Studies)

	Academic Achievement	Social/Emotional Development
Studies favoring conventional grouping	1	0
Inconclusive studies	5	4
Studies favoring multiage grouping	2	3

are financially inefficient; another is that their multiage classrooms are educationally undesirable. The first argument is fallible; recent research [34] shows that financial savings from such closings are often illusory, as they are subsequently eaten up by costs of transporting students. The research reviewed in this paper indicates that the second argument is also ill-founded. Multiage classrooms appear to convey a number of benefits, and no disadvantages, to their pupils.

Age-segregated classrooms are particularly difficult for children whose development differs from the norm. In conventional schools, the child of exceptional intellectual gifts is sometimes allowed or encouraged to "skip" a grade, which, although usually successful [28], is socially problematic and a poor substitute for genuine acceleration. The child whose development is slower than the norm faces the unmitigated disaster of grade repetition [25]. Even the least radical multiage structure, the split-grade classroom, can deal much more flexibly with both faster and slower learners. Some jurisdictions are now beginning to take note of these factors. In Canada, the Province of Ontario recently proposed for discussion a policy of flexible entry, multiage integration, and continuous progress in the primary division [39].

The social environment of young people during their formative years is a matter of considerable importance to educators and to parents. Conventional structures, though sanctioned by a century of familiarity, must be questioned if they stimulate rivalry, aggression, and isolation, for no apparent advantage. Environments that include a range of ages must be considered if they promise greater cooperation, nurturance, and friendship, for no apparent cost. The evidence on multiage grouping appears to confirm the basic principle that diversity enriches and uniformity impoverishes.

Conventional schools and classrooms could reap some of the benefits of diversity by developing programs of cross-age tutoring, by encouraging adults and senior citizens to participate in schools as students and volunteers, by organizing extracurricular activities that cut across grade and age lines, and by welcoming rather than resisting split grades. In small schools and multiage classrooms, teachers live with the daily challenge of working in environments that depart from the general norm. The creativity and inventiveness required exacts a toll in time and energy. But such educators may take encouragement from the fact that the mass of evidence indicates that, for their pupils, these environments are socially and psychologically healthy places.

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